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Treating a Batch of Supers with Formalin Gas

By Earl C. Reed

THE old saying that "procrastination is the thief of time" doesn't begin to tell the story when it comes to American foulbrood. This element in the makeup of the average beekeeper is responsible, no doubt, for the burning of colonies when found by state inspectors. No one whined any more or kicked any harder about this drastic law than I did, especially after I had gone through a yard twice in advance of the inspectors and each time carefully removed (after sundown) every colony found infected to an isolated hospital yard several miles away, where every care was taken for shaking and all the infected combs melted up at once.

Then along comes Mr. Inspector and finds a few more which have one or two cells, and, of course, always in my strongest and best colonies. "Why not let me shake that colony right now in any way you say," I argued. "Can't do it; the law says I must burn them." And burn them he did.

Mind you now I said a lot that I would like to tell you, but I know the editors won't print it. Then the more I studied it over the more I thought I should be just as keen and just as capable of finding disease as an inspector, and that since the old law of putting on a red tag giving the beekeeper ten days to clean up had been tried and found wanting, perhaps I was wrong.

My first six years in beekeeping had been entirely free of disease. The last year that the old law was in effect (1926) the inspector tagged four colonies in one yard. My son had helped on the inspection and, like the average young man of today, thought the inspector didn't know what he was talking about, that it wasn't foulbrood, and also disregarded my instructions to shake them to make sure.

At the time I was sick, leaving the yard work all to the boy. The next

spring we shook forty-four colonies in that yard. The state donated cyanide gas and gasoline for a nice bonfire in which I not only got no pleasure but absolutely couldn't see the point.

Up to this time disease had been confined to one yard out of six, but in 1928 we found it in five yards, and plenty of it; I thought probably from the interchange of supers, as we have a central extracting plant and a load of honey comes in from one yard and the supers had been going out to some other yard after extracting. (Not so now.)

We carefully shook something over a hundred colonies in 1928. I was worried. My all is in my bees and equipment. Then came Jay Smith's article on sterilizing with formaldehyde gas. It looked good to me, but the way he described certainly didn't seem to apply to the number of supers I had. I had a room in an old warehouse I was not using, so I closed up two windows in it, one of the two doors, lathed and plastered the room and coated the plastering with Portland cement and hydrated lime, equal parts in water, the consistency of heavy paint, and gave it two coats, to seal all the pores in the plastering.

I put an inch pipe in the center of the ceiling about two feet long as a way to replenish the formaldehyde. The pipe was provided with a tight cork. The door was glazed and the frame fitted with two-by-fours for door stops, which were well felted all around. Keyhole was covered with adhesive tape. I also ran a half-inch copper tube, soldered to a gallon boiler, through the partition. It was arranged so I could boil formaldehyde gas over an oil stove into my gas chamber without losing the gas.

I took the entire article by Mr. Smith to our high school professor and got all the information I could on the gas, also from my doctor, both of whom gave me some valuable

hints. Smith covered the whole thing when he said it takes **time, temperature, moisture and plenty of gas.** I believe if all these points are elaborated on the treatment can perhaps be made successful.

My room held 750 ten-frame supers, placed on inch strips on the floor and piled crisscross for free circulation of the gas. Each tier of supers was sprayed with a fine spray of water by means of garden hose. When the last tier had been sprayed I prepared my first gas bomb for those foulbrood spores that were roosting on my combs. It consisted of one gallon of 40 per cent formaldehyde solution and two quarts of water placed in a 15-gallon drum resting on four bricks. When everything was ready for the getaway before locking the door, I dropped two pounds of permanganate of potassium crystals into the drum. This releases about 75 per cent of the gas in five minutes, and caused a sweating on the glass door. The brick under the container is important because of the heat produced, and the size of the container is also important because of the foaming and boiling that is induced by the mixture.

I didn't use my pipe in the ceiling. Every three days after that for three weeks I boiled a quart of formaldehyde mixed with a quart of water in my small boiler with the idea of keeping the atmosphere in the room as fully charged with gas as possible. I have been told that the air will only take up so much and that after that you can't get any more in—any more than you can get more water in a bucket after it is full.

I didn't have any way to increase the temperature. I did this job in May and June. A temperature of 90 to 95 I would say would be ideal, or just about all the combs will stand without breaking down. I treated two batches of fifteen hundred supers in this manner, each one twenty days.

I only risked ten brood combs for experiment. These were treated double time and all have proved sterilized so far. Don't ask me if this is enough formaldehyde, or too much, or more than enough. I don't know. I think the way has some possibilities. On inspection in the spring of 1929 we found six light cases, and the inspector only had the fun of burning one.

As we had been so badly infected in 1928, our inspector felt he should make a complete second inspection, although, according to the law, he should have only inspected the yard where he found the one foul colony. I was mighty glad to have his co-operation, even if it might cost me a few more colonies; but it didn't. I got an absolute clean bill of health on the second inspection, which was made about three weeks after the first one. Wyoming.

Listen, Folks

Honey needs someone to blow its horn. There is much of it to dispose of and there are many other sweets on the market. Big business doesn't get big over night. The nationally advertised brands have been advertised for years. The leading manufacturer of cereals is spending \$3,500,000 this year on advertising because it is profitable.

With honey we are up against the simple job of getting folks to take what they already know is good for them. It is a big job to change the eating habits of the American family, but it is being done every day. Doctors, dieticians, teachers, food pages in newspapers, and radio broadcasters are doing it. Individual beekeepers have small chance to make far-reaching contacts with these agencies. To impress them favorably requires prestige, authority, personal acquaintance and influence.

As president of the American Honey Institute, Dr. H. E. Barnard has made more far-reaching, productive contacts for honey than any other individual perhaps could have done. Miss Fischer's demonstrations at national conventions of home economic workers, hospital dieticians and restaurant people, where she talks about honey for health before those who guide our eating habits, are already bringing such a volume of requests for more facts about honey that the Institute's offices are swamped. If you follow the pages of this Journal you will know about this good work.

Did you see the full-page ad in the Saturday Evening Post, in colors, including honey? Did you listen to Betty Crocker devote fifteen minutes of the National Broadcasting Company time to honey? Have you seen how the leading food writers discuss honey and its uses? How the big food manufacturers put honey in ad-

A New Method of Migratory Beekeeping

By Charles N. Ellis



Here is a picture of ten colonies that I put on a trailer and hauled to a swamp here in Massachusetts for the clethra flow. The flow failed and I got only 140 pounds of extracted and 23 sections out of the ten colonies.

Next year I hope to put the ten colonies on the trailer, haul to an orchard, then from the orchard to cranberry bog; from cranberry to the clethra, then home to requeen and prepare for winter. That will give me two rents (cranberry and orchard), a little June honey and some clethra honey. I leave the colonies on the trailer at each place. It sounds good, but registration and insurance on the trailer makes it a gambler's chance.

vertising their products? Why, if we had to pay cash for these things, the sum would run into six figures.

My plea to you is to think straight. The time has come for commercial beekeepers to see that nobody can be more interested in their business than they are themselves. Nobody can expect the honey market to improve over night. We may blame the "depression" for present conditions, but there will always be honey for sale under conditions of keenest competition with other sweets. We are only fooling ourselves in waiting for some fairy godfather to untangle our problem.

At present the American Honey Institute is the only organization we have pointing a way out of the woods. It has no axe to grind, represents no selfish interest, and is bigger than any individual or any other group. It is the only influence directly responsible to the beekeeping industry which is working every day for our interests.

1930 Report

The flow from clethra was very heavy this year and the honey extra light in color. Clethra grows in woody swamps through eastern Massachusetts, and beekeepers situated near the big swamps have a good location, while bees ten miles away get little.

I put fourteen colonies on the trailer, hauled them about twenty-five miles to a good location, let them set right there for three weeks and two days, and I believe they gathered about a thousand pounds, although I only harvested about two hundred pounds surplus. It was the first real nice honey I ever produced.

Massachusetts.

What is needed now is money. I put this proposition up to you, Mr. Beekeeper. We have the services of a highly valuable man for a mere pittance. You who have a warehouse full of honey you do not want to sell at five cents may still have the honey if we lose the services of our "Ace."

The Institute must have something to use for money pretty soon. Michigan led off by subscribing a dollar per ton a year ago. Over \$600 was raised that way, and at the winter meeting just held it was voted to continue. Iowa, Minnesota and Wisconsin have made liberal contributions.

We want to know that you are with us, too. Make your check payable to the American Honey Institute. Do it today. Don't pass the buck and wait for "George to do it." Act now. If you get behind this program, too, and stay with it, five years from now you will be proud of yourself.

Yours for action,
R. H. Kelty, Treasurer,
American Honey Institute.

Frank Rauchfuss

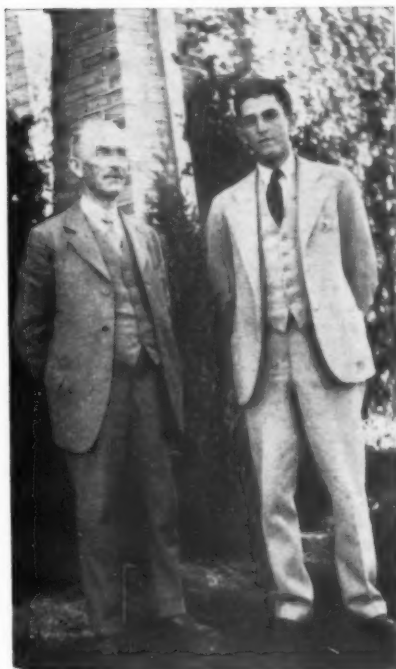
The passing of Frank Rauchfuss removes one of the most useful and conspicuous of American beekeepers. Quiet and unassuming, he was able to hide his personality in the organization with which he was associated and to which he gave the best years of his life. To his ability as an organizer is generally credited the success of the Colorado Honey Producers' Association, of which he was secretary and manager for many years. Because of his unquestioned integrity and rigid insistence on careful grading of the honey sent to market by that organization, the "Bear Brand Honey" secured the confidence of the trade and enjoyed a preference wherever it was offered.

On one occasion the writer went to Chicago to learn something about the marketing conditions under which honey was selling at that time. In one of the large commission houses a shipment of honey from Rauchfuss was pointed to as an ideal in packing and grading. Mention was made of the fact that the Colorado grade could be depended upon and that it was unnecessary for the buyer to examine a package coming from the Colorado Honey Producers.

It was this insistence that every package conform exactly to the grade with which it was stamped that built the reputation for the Association brand and made it possible in many cases to secure a premium for the product.

Fortunately for his friends and associates, he was able to continue actively in charge of his work to the end of his career. He worked at his office as usual on Saturday and died from pneumonia on the following Wednesday, November 19.

The first we learned of his interest in bees and honey was about 1884, when he took a shipment of honey from New York to the German market to help defray his expenses when he returned to that country for medical treatment. He was born in Saxony, March 16, 1860, and came to Louisville, Kentucky, in 1880. He worked as book-keeper for a grocery firm for about four years until his return to the homeland on the above mentioned quest for health. Coming again to America, he remained in New York, where he became book-keeper for a hardware concern until



Frank Rauchfuss and son, Walter

his physician advised a change of climate. He reached Denver about 1890 and worked in a machine shop with his brother, Herman, for a time. Ill-health soon forced him into the open air and he took charge of the Windsor Farm Apiaries of about two hundred colonies.

From that time on, a period of about forty years, Frank Rauchfuss has devoted himself entirely to the business of beekeeping, either in the production of honey or marketing of that product. For a time after leaving the Windsor Farm he sold supplies for the L. A. Watkins Company, of Denver. In 1898 the Colorado Honey Producers' Association was formed with our friend as secretary-treasurer and manager, in which position he remained until the time of his death.

For many years he has been pointed out as the ideal manager of a co-operative organization and the outstanding success of the one to which he was attached has attracted wide attention.

He has left little in the way of written contributions to the beekeeping magazines. Perhaps his most im-

portant was an article, "Every Step in Grading Comb Honey," published in the American Bee Journal, June, 1923, which was republished in pamphlet form and which has very generally been used for reference by those interested in this subject. He was recognized as an outstanding judge, and his services were in demand at fairs and shows where honey was on display. He acted as judge of the honey exhibit at the Mid-West Horticultural Exposition on a few occasions.

Always active in every movement for the advancement of the industry, we find Rauchfuss prominent in both the American Honey Producers' League and the American Honey Institute, holding office in both organizations at the time of his death.

One brother, Herman, is also prominent in the craft and well known to beekeepers generally. He also left a brother, Carl, at Portland, Oregon, and Alfred, at Louisville, Kentucky, and a sister, Mrs. Clara Lang, of Louisville. Of his immediate family, his wife, Anna, and a son, Walter, survive him.

Dr. Bertholf, of Bee Culture Laboratory to Study in Germany

Dr. Lloyd M. Bertholf, field assistant at the Bee Culture Laboratory, resigned on August 20. Dr. Bertholf, in company with Mrs. Bertholf, sailed on August 23 for Scotland, on his way to Munich, where for the coming year he will study with Dr. von Frisch under a national research fellowship. Enroute, Dr. Bertholf attended the meeting of the Apis Club International Conference, at London, on September 8 to 12, where he delivered a lecture on the results of his recent experiments on the response of honeybees to light of different wave lengths.

Sugar, Sugar—More Sugar

A new variety of sugar-cane that yields an extra ton of sugar to the acre has been bred by Federal scientists at Canal Point, Florida.

Slumgum for Fixing Foundation

A taper for fixing foundation can be made out of the slumgum left over after rendering wax, so a writer in the "Leipziger Bienenzeitung" (August) informs us. It looks a little dangerous when in action and forms a tremendous "thief"; moreover, the aroma is not of the best. But some may be glad to know of a way of using up refuse wax, which, if not precisely suitable for the comb honey producer, might yet be of good service in fixing brood comb foundation. A. D. B.

COUPON

To Russell H. Kelty, Treasurer, American Honey Institute, Lansing, Mich.:

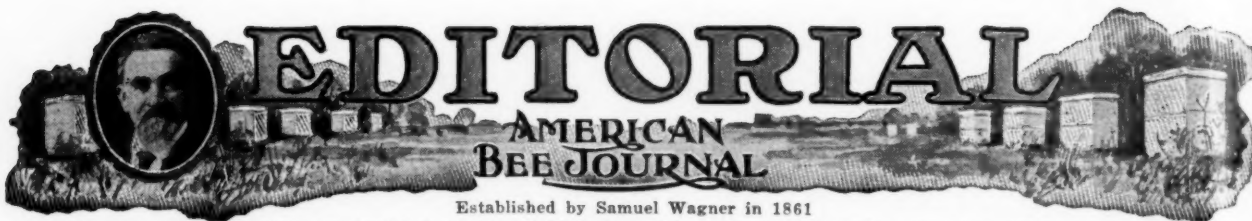
I hereby enclose _____ or pledge _____ for the American Honey Institute for the year 1930.

In addition to the regular work of the Institute in my behalf, it is understood that I shall receive, on request, from the Institute, the various printed leaflets, folders and mimeographed sheets which are for general distribution.

Name _____ Address _____

(Mail this coupon with your check direct to Russell H. Kelty, Treasurer, American Honey Institute, East Lansing, Michigan.)

for January, 1931



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C. P. Dadant, Editor; Frank C. Pellett and G. H. Cale, Associate
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What Is Good Honey?

Honey grades are based on market demands. The article which most nearly meets the largest demand grades highest. Since the present taste of the public is for honey that is light in color and mild in flavor, such honey ranks first.

Recent official rulings in Germany which define honey that is low in diastase content as "adulterated" have led to some investigation by the Bureau of Chemistry on this subject. Orange honey was found to have little diastase content and alfalfa honey was also found to be low. It is interesting to note that dark honeys were found to have a higher diastase content than the light colored honeys and thus would be permitted to enter the German market where some of our light honey would be ruled out.

Since there is endless variation in the quality of honey from different regions and from different floral sources, there is room for much difference of opinion concerning grades and quality. What ranks highest in American markets thus fails to qualify in Germany because of its low diastase content.

This emphasizes the need for research to determine the dietetic value of honey from different sources and raises the question as to whether further knowledge may not change our ideas concerning quality. Perhaps the regions which produce dark honey may yet see the day when their product will command a premium for some quality not now recognized.

Bees in January

If you have been in the cellar, make sure that the temperature is not above 45 to 48 degrees and not below 40. If the hives have plenty of ventilation, wide open entrances and the air of the cellar is dry, they will go through four or five months of winter without any loss, except a few bees that will fall on the floor of the cellar. If they are returned, in spring, to the exact spot the hive occupied, they will not lose any bees by going to the wrong hive after a flight.

Bees out of doors will winter well if they are protected against high winds and the hives are not disturbed. In every case, however, whether wintered in the cellar or out of doors, the food must be of good quality, and not fruit juice or honeydew. If a snow comes and covers the hives, so much the better, except that, if warm weather comes, the entrances must be clean and the melting snow must not run into the hive. We have seen bees under a drift four feet deep come out in the spring in fine shape.

Comparative Experiments

The information received from a friend, lately, regarding observations which do not agree with the common experience reminds us of the fact that different circumstances bring about results that may differ widely.

The writer remembers a discussion which degenerated into a dispute, some sixty years ago, considering the pos-

sible usefulness of pollen kept over winter. The senior Dadant had translated an article for "L'Apiculteur" from the American Bee Journal, written by a noted beekeeper of the old days, M. M. Baldrige. He advised the beekeeper who had combs of pollen on hand to preserve them and give them to weak swarms in spring, so that the bees might use this pollen to rear brood at a time when pollen is still scarce in the fields. A contributor of "L'Apiculteur," Canon Colin, of Metz, under the nom de plume of "Un Apiculteur Lorrain," wrote a very sarcastic criticism of this advice, claiming that pollen from the previous season was no better for the bees than so much plaster, as it either dried or moulded in the combs. The fact of the matter was that pollen would mould and become worthless in the vicinity of Metz, during the winter, while it kept very well in that part of Illinois inhabited by Mr. Baldrige. Each of the writers held to his views and the arguments were very sour.

There are plenty of such experiences, contradicting each other, because of the differing conditions. Lately a noted French writer gave an account of four trips taken by a young queen previous to fecundation, with the very clear idea that queens usually made several trips before mating. He lives in a city where colonies of bees are not numerous, so that drones were probably scarce enough to render the trips of the young queen useless for some time. With us, in an apiary of somewhere near a hundred colonies and other apiaries not far off, a young queen rarely makes more than one trip outside before being pursued by a drone and fecundated.

There are many instances where experiences differ, owing to differences in conditions. It behooves us, therefore, not to condemn the other man's reported results without ascertaining whether these results are not due to conditions differing in some way from the conditions under which we find ourselves.

What Others Have Done

The beekeepers can well take note of the success of the orange growers in marketing their crops. It seems but a few years ago that the citrus fruit growers were disorganized, orange groves were a drug on the market and there was general discouragement in the industry.

Now we learn that the past year has broken all records for sales of California citrus fruits with a total sale amounting to a hundred and thirty-five million dollars in value for the California Fruit Growers Exchange alone. This exceeds by five million dollars the record of their previous banner year. Nearly sixty thousand carloads of citrus fruits have been shipped by California growers the past year.

The remarkable thing about this record is the fact that it has been done in a year of depression, when the public has reduced buying to the minimum and most industries report losses instead of gains.

Well directed and persistent advertising, standardized practice in grading and well balanced distribution have accomplished this result. What fruit growers have done beekeepers may well hope to do. Our product is a high quality one suited to special demand. With the same intelligent effort there is no reason why honey might not be sold as readily as oranges.

If our industry is to become prosperous, we must use the same methods and must secure uniform distribution, careful grading and widespread publicity. The present efforts of the cooperative organizations are looking to meeting the need in marketing the product and the American Honey Institute bids fair to solve the other problems. With consistent support of these agencies we may expect similar results.

Package Bees for Orchard Pollination

Reports from Wayne County, New York, are to the effect that package bees proved a failure for orchard pollination during the past season, due to the fact that an insufficient number of worker bees were present. According to the Rural New Yorker, where package bees were used but a 25 per cent set of fruit was secured, while in other orchards 100 per cent set was secured by the use of full colonies.

The live bee shippers should make a careful study of the needs of orchardists, since an enormous trade can be developed under proper conditions. If such reports as the above become general, orchardists will soon lose interest in package bees and this business will be lost to the shippers. Rentals of from \$3.00 to as high as \$7.00 per colony for full colonies are reported from this region. Whereas satisfactory results are reported where strong colonies were used, weak colonies and packages failed to satisfy the fruit growers.

It is evident that larger packages should be recommended for the use of the fruit grower, since too large a portion of the bees in the ordinary package stay at home to build combs and serve as house bees.

As has previously been pointed out in this magazine, there is a great opportunity for business for the package shipper in serving the needs of the fruit grower, but present indications are that the fruit grower prefers to rent full colonies from nearby beekeepers.

Ultra-Violet Rays and Bees

In view of the extravagant claims that have been made for the queens treated by ultra-violet rays, it is interesting to note that the report of the chief of the Bureau of Entomology recently issued states that such rays are injurious to the brood. We quote the above report as follows:

"The results so far indicate that ultra-violet rays, even in minimized quantities, are detrimental to all stages of the brood, and thus far it has not been possible to give a beneficial exposure."

The bureau is apparently not yet ready to report the effects of such exposure to mature bees, but the indications are that much of the propaganda for treated queens is premature and made without sufficient knowledge as to the real effect. The bureau's further investigations of this field will be awaited with interest.

Controlled Mating of Queen

The most interesting statement in the recent report of the Bureau of Entomology is concerning the hand mating of queens at the Southern States Laboratory, as follows:

"Work on the hand mating of queens without the use of instruments has been conducted during the past season, and the results obtained so far indicate that the method has considerable promise, for a partial degree of insemination can be effected in all cases. The Southern States Laboratory possesses a few hand-mated queens that to all purposes are equal to those mated in nature. For the time being, efforts will be concentrated on the technic of insemination. For this reason many queens are dissected shortly after being inseminated and the results checked with the spermatheca of naturally mated queens."

There has been so much interest in the above method, first reported by C. E. Quinn and his nephew, Harry Laidlaw, that we are very glad of the above verification of their reports. If this method can be made generally available to queen breeders, it should result in definite advance in breeding.

The Upgrade

This is a season of severe business depression. The whole country is steeped in gloom. Prices are low, there is much unemployment and the general impression seems to be that everything is going to the bow-wows. The fact

is that there never have been so many opportunities as are open at the present moment.

The writer once knew a very prosperous man who refused to follow the crowd. He declared that he could always make more money when business was poor and times were bad; and he did. His method was simple—he picked up the bargains when everybody was anxious to sell and sold them later on when everybody was anxious to buy.

Just now there are homes for sale, farms for sale, bee-keeping outfits for sale at a small part of their actual value. A careful purchase now may make the fortunate buyer independent for life. It is times like these that offer the golden opportunity to the man with little cash. When there are no cash buyers one can buy productive property on easy terms and pay for it from its earnings. One can buy a farm now with little or no cash payment and let the farm pay its way. The same is true of bees and other property.

There are indications that we have reached the bottom of the present depression and that from now on the tendency will be upward. Now is the time to prepare for a forward move, and it is the fellow who is in advance of the crowd who profits most by the rising market. It is at times like the present that one can buy on terms so favorable as to insure success.

Signs of Promise

Although prices are still very low, there is a better trend in the honey market. Every day we hear of some new outlet for honey, and the general reports indicate far better local demand. Many of the new outlets come as a result of the activity of the American Honey Institute, and lower prices have stimulated consumption. Numerous beekeepers are peddling their honey who usually sell at wholesale, and every salesman finds new markets. In spite of curtailed foreign markets, future prospects look favorable for the honey producer.

Increasing Profits

Only two ways are apparent by which profits can be secured in any business: either increased prices or reduced cost of production. For the present the day of high prices has passed. On every hand we find prices dropping lower and lower. The producer is not injured by lower prices so long as the thing he buys goes down as fast as the thing he sells, for all are thus equalized.

Since it is not easy to increase profits by raising prices, the one way left open is by reducing cost. Sometimes it is possible to reduce cost of operation by judicious investment in labor-saving equipment. The beekeeper who has plenty of supers to harvest the crop that comes with the unusual honeyflow gets his money back for this extra equipment very quickly in a good season. Good equipment, with plenty of reserve supplies, good combs and good bees all tend to increase the crop and thus reduce the cost per pound. To requeen colonies which are below par is likely to prove a very profitable investment. It is in times like these that one can least afford poor stock or insufficient equipment. In every good season untold thousands of pounds of honey are lost for lack of sufficient storage room.

True Conservation

The beekeeper is to be congratulated on the fact that he is a conservator. The bees gather the nectar which would be otherwise a waste product and convert it into honey, the finest sweet known to man. Honey production thus makes a net addition to the total wealth. Grain is produced at the expense of soil fertility, meat requires the consumption of grain or hay. Honey alone is secured as a net saving. The honeybee alone gives more than it takes. Instead of reducing the remaining wealth, wealth is increased by her visit in the increased yields of fruits because of better fertilization of the flowers.

Montana Bee Pasture

Something About the Plants from Which the Big Crops of Honey in the Northwest Are Secured

By Frank C. Pellett

SEVERAL bee men from widely separated points in Montana spoke to me of the season of 1930 as one of failure of the honey crop in their immediate vicinity. Yet on closer questioning some of them admitted securing yields of about three cases of comb honey or a hundred pounds of extracted honey per colony. In the locality in southern Iowa where I kept bees for many years, we would regard that as a very fair crop. To hear it spoken of as a failure made me smile. It is true enough that they are farther from market and must sell at a lower average price, but it was yields about which we were talking, not price. Always when I visit the sweet clover regions of the Rocky Mountains and plains, I marvel at the yields they get in good locations.

These yields appear to be the result of a combination of favorable environmental conditions, and they are only possible because of the large acreage of sweet clover and alfalfa. Where these crops are important in the farming rotation the beekeeper has a great advantage. We visited several neighborhoods where sugar beets have replaced alfalfa to a considerable extent in recent years and the bee pasture has declined accordingly.

Another advantage lies in the fact that in this northern region Nature concentrates her growing season into a shorter period and everything is speeded up. Because of longer days and more sunlight, the crop growth is more rapid and honeyflows are more intense. The bees store a much larger portion of their harvest as surplus and consume less in colony activities. Brood rearing begins rather late and reaches its peak at about the beginning of the harvest. The normal colony activities continue through the harvest season and cease at its close, thus consuming a minimum amount of stores during the part of the year when no honey is to be had in the field.

The third important advantage is that the climatic conditions are most favorable for the growth of alfalfa and sweet clover in this area. The usual variation between day and night temperatures during summer is sufficient to insure heavy honeyflows from these plants. With hot days and cool nights we find a much heavier secretion of nectar than where there is little difference in temperature between day and night, as is the case so often in the corn belt.

Doubling Up

Frank Clift, at Huntley, explained to me how the beekeepers in this region could take advantage of their



Blossoms of cottonwood

peculiar situation to increase yields. Because of the fact that the honeyflow does not come until July, there is ample time to build up strong colonies from small nuclei ahead of the crop. His plan is to buy as many queens in spring as he has colonies. To each of these queens he gives two frames of emerging brood in early spring, and each produces a strong colony by time the flow is on. In autumn he doubles the colonies and carries only half the number through the winter. Since the price of a queen is much less than the value of the honey necessary to winter a



Fruit of the buffalo berry

colony of bees, he makes a saving in money, disposes of all poor colonies and reduces his season's labor. With the flow coming late, he finds it practical to divide his colonies in spring and still get them strong in time for the crop.

Beekeeping in Montana is confined principally to the river valleys. Neither the dry farming nor the grazing neighborhoods offer much for the bees. Since the water supply for the irrigated valleys comes from storage reservoirs, it is fairly constant and the crops are far more uniform than in the regions which depend upon natural rainfall. Alfalfa and sweet clover under irrigation seldom fail, although in some neighborhoods there is an occasional short crop, as was the case the past season. According to the best information which I could secure by averaging the many reports secured in different parts of the state, one can depend upon an average yield per colony of from 150 to 200 pounds for a ten-year period. This, of course, applies only to locations which are not overstocked.

Building Up

These irrigated valleys differ greatly in the amount of spring forage which is available. Some of them, which appear to have ample summer pasture from alfalfa and sweet clover, have but little spring forage. Others seemed to have an abundant spring flora of great variety which would insure nectar and pollen for the bees from the time the days are warm enough for them to fly in spring. In some valleys we find the streams lined with the small early willows which yield so generously. Everywhere the cottonwoods or poplars are common. These provide much pollen and too much propolis or beegum. Alders are common along the streams and these also provide pollen in abundance. Box elders are found in some locations and appear to be entirely absent in others. The box elder is a very valuable source of spring stimulation for the bees.

Choke cherries and wild gooseberries are abundant in places. Such trees and shrubs as above mentioned form veritable thickets bordering some of the smaller streams. Buffalo berry is also abundant in the canyons and dry water courses at higher levels. This shrub has silvery foliage which is very attractive. The small, red fruit is closely clustered along the smaller branches and is quite sour, more like the garden currant than any fruit which I know. Wild plums add to the variety.

In the Bitterroot Valley and bor-

dering Flathead Lake there are commercial fruit districts where orchards of apples and cherries furnish good spring pasture. In such places the fruit grower is likely to be interested in the presence of the bees for orchard pollination. Only a comparatively small portion of the state is adapted to fruit growing, however.

The dandelion is the most important of the early spring flowers, for the beekeeper, and has the widest distribution. It is so abundant that many beekeepers secure some surplus from it. It is common practice to put on shallow extracting supers or food chambers to catch this flow. Whatever remains above the needs of the bees for spring brood rearing is saved for reserve winter stores. This shallow super is given back to the bees at the close of the season for an additional winter food supply.

Alsike and White Dutch Clover

In the Gallatin Valley I saw such fields of white Dutch or pasture clover and such alsike as would do credit to the dairy districts of Wisconsin or Minnesota. It is abundant in other valleys also. While the bees work both freely and undoubtedly get much surplus from them, they are of secondary importance, for alfalfa and sweet clover yield so much more that the beekeepers pay little attention to them.

There are a number of minor sources which are common and which yield some surplus, but which count little in the total production of the state. Gumweed, often called rosinweed, with its sticky buds and yellow flowers, is everywhere common, even on the dry ranges in midsummer. The honey is not of high quality and granulates so quickly that the beekeepers dislike to see the bees gather it.

Along the streams and in the canyons the white clematis is abundant and yields some honey. Snowberry, commonly called buckbrush, is also widely distributed.

In the southwestern corner of the state rabbit brush is common on the dry hills and uplands. The yellow flowers somewhat resemble the eastern goldenrods in appearance. The plant is shrubby and grows in dense clumps. Rabbit brush is far more important southward in desert regions of Utah and Arizona, but Montana bees get some honey from it in a limited area.

In the high mountain country, fireweed, or willow-herb, is abundant and yields much white honey of high quality for a few years following forest fires. In the vicinity of Whitefish and Kalispell the beekeepers depend to some extent on fireweed.

Locations

In driving nearly three thousand miles with O. A. Sippel, the state apiarist, I was much impressed with



Rabbit brush in bloom

the great variation in the different valleys. We found much unoccupied territory and some that was much overstocked. Along the Missouri River there is a great deal of sweet clover on unirrigated lands, where it has spread along the river bottom and on sandbars and islands. Since this is not cut, it offers extended pasture. Many of these places, however, are remote from towns and schools, but could be utilized as summer locations for the bees while families lived elsewhere under more favorable surroundings. Some of the smaller irrigated valleys offer ideal bee pasture as well as good living conditions. In some sections there is a large acreage of alfalfa grown for seed, as well as much sweet clover, along the irrigating ditches and in pastures. One who wishes to change his location in this region should write to Mr. Sippel, at Bozeman, for information, as he is endeavoring to prevent overstocking. When this happens, neither the newcomer nor the men already located get a satisfactory crop. Sippel has spent much time in investigating unoccupied territory and is in position to find a place where there is ample pasture without crowding.

At present the wholesale markets are in a very unsatisfactory condition and the Montana beekeeper must depend mostly on shipping his product in car lots to distant points. The long haul and high freight rate is a handicap which would be difficult to overcome were it not for his high average yields.

Crop in Utah

Dan Hillman, inspector in Utah, urges home folks to increase consumption because of the unfavorable market conditions. Despite pre-war prices, Utah honey is being hurt with

all the rest of American honey by the tariff in Germany and other restrictions on exportation.

Hillman reports a production of 5,000,000 pounds in Utah.

Glen Perrins.

That "Burning" Word— Sh!—Sh!

I am beginning to think that burning diseased colonies as soon as discovered is the only way of completely eradicating American foulbrood. Of course, the intelligent bee man who is taking care of his diseased colonies in the proper manner should be given a chance, but the fellow who knows what foulbrood is like and waits a whole year for an inspector to come around and tell him that his bees are diseased ought to have them burned. Every beekeeper should inspect his own bees several times a year. In a locality where foulbrood is prevalent the brood should be examined every time a super is put on or taken off, and a super should never be placed on a colony showing the least indication of disease; nor should honey taken from such a colony ever be extracted with other honey, because of contamination of the extractor and mixing of combs.

E. S. Miller, Indiana.

Let-Alone Beekeepers

There are some writers who advocate "let-alone beekeeping." We have around here quite a good many let-alone beekeepers, but we never considered them very successful in anything except in spreading foulbrood.

E. S. Miller, Indiana.

The "Best" Race of Bees

By Allen Latham

FEW beekeepers are content to start in with one variety of bees and faithfully hold to that variety year after year, for there is in all of us a feeling that there may be something better than the bee we have, and, influenced by this feeling, we try out this race of bee and that. I started with the black bee, for in the eighties there were few Italians kept in most parts of New England.

It was during my second year that the Carniolan began to be written up. I tried to get a colony and put in my order in early summer. After waiting two months and getting no encouragement from the firm which was to furnish the colony of Carniolans, I shifted and bought a colony of Italians. From that day, except for spasmodic experiments with different races, I have kept the Italian bee—forty-six years. It was about two years later that I did succeed in getting a pure Carniolan queen and gave that race a trial. Three times since, I have tried out the Carniolans. Every trial resulted the same. Though having good traits, the Carniolan as an all-round satisfactory bee was inferior to the Italian.

I tried out the Banat bee, the Cyprian bee, and the goldens. All three fell below the Italian in general excellence, though each surpassed the Italian in one way or another. Each was given a fair trial and discarded in favor of the Italian. Some twenty-four years ago the Caucasian rose above the horizon and I tried to get some queens of this race. I was unable to get any pure Caucasian at that time, and it was some eight years later that I tried again.

This second lot of Caucasians must have been very nearly of pure strain, though they were not the grey type. I did not like them at all. They were not good to look at, for they resembled mongrel stock carrying Italian and black blood. They were very cross and they showed little excellence in any way. Had they been as good honey gatherers as they were propolis gatherers, they would have been worthy of further trial.

Two or three years ago articles began to appear in bee periodicals and in state reports which eulogized the Caucasian bee. An advertisement was persistently appearing which claimed that a good strain of Caucasians was superior to the Italians. Not only was this strain of Caucasian splendid honey gatherers, but they were easy to handle, not prone to swarm, and they did not rob as do the Italians. So, against my better judgment, I yielded again to the old urge. I bought four of the advertised queens, paying six dollars for the four. The queens came. I did

not like their appearance at all. The queens were almost runts.

I succeeded in introducing three of the queens, and when their bees appeared I was pleased to note that the workers of these queens were almost a uniform grey. I felt that at last I might have in my possession some real Caucasians, and so the next year I ordered a dozen or so more of these queens, stipulating that the queens must be well reared and hinting that I should return them if they were not up to form. These queens proved on arrival to be much better than those of the previous year, yet they impressed me as small. I thought that it might well be possible that Caucasian queens in their purity ran small. This possibility was decidedly shown not to exist when I reared some forty queens from the best queen of the lot, for the queens of my own rearing were rugged ladies, far better in appearance than those I had bought. With the queens bought and the young queens reared, two apiaries, one of twenty colonies and the other of forty, were Caucasianized. Conditions for requeening were not the best and the final result was eighteen colonies in one yard and twenty-two in the other with queens of Caucasian parentage. Only a small number of the young queens mated with drones of their own kind, and the workers were a straight hybrid between Caucasian and Italian.

Now for the results. For beekeepers the chief result desired is honey crop, but many of us care for other things as well. I shall try to give an unbiased statement of the value of the two races of bees as shown by all that took place in these two yards. As to handling, there was little to choose. Some Caucasian colonies were easy to handle, others were cross, and some of the hybrids suggested the familiar cross between blacks and Italians. I can truthfully state that by selective breeding Italians can be bred to be as gentle as Caucasians at their best.

The queens of the Caucasian bee are dark. It is exceedingly difficult to find an unclipped Caucasian queen in a populous colony, unless she is spotted at once before bees begin to get uneasy. I found it necessary to cut all four wings close to the body. Queens thus clipped look like big ants and are found with little difficulty if proper care is used. It must be said, however, that for ease of queen finding the Italians are 100 per cent better than the Caucasian.

Several of the Caucasian colonies, not all of them, brought in vast quantities of propolis. The hives in these two yards have frames parallel with the side entrance of the hive, there

being no entrance at the ends. In several cases the Caucasian had built a curtain of propolis from the bottom bar of the first, and sometimes the first two frames, to the hive bottom. This curtain was not solid, for it had small holes, ten or twelve in number—that is, it was a lace curtain. In attempting to pull one of these frames out the bottom board was torn in strips, the main strip being strongly held to the curtain. In this particular hive it would have been possible to gather a lump of propolis large as a baseball. A very bad trait this, but one which might be bred out if this race had other excellences to make it worth while.

This race is reputed to be excellent in wintering qualities. This was not true in these apiaries. All were alike in having bad stores, and most of them came through weak. The weak Italian colonies built up quickly, while the Caucasian colonies were very slow to build up, some in fact not getting into shape until late in August. I may be wrong, but the Caucasian seemed to me to be the poorest winterer of all the grey races.

We were told that these bees were little prone to rob. While requeening these apiaries this fall we were twice obliged to stop operations because of robbing. The robbers were not all yellow and they were not all grey, but I noted a goodly number of them absolutely black—these, of course, being Caucasians with all their hairs worn off. One swallow does not make a summer, but it is quite evident that the statement that Caucasians are not prone to rob needs further proof.

It must be admitted that swarm control with the Caucasian bee is easy. While the test was in process few of the colonies ever showed any swarm fever, and those which did were easily brought under control. This is an important point in favor of the Caucasian bee, but not paramount in my own mind, as I have brought my own strain of Italians to the state that swarm control is relatively easy.

The most important point of all remains—the honey gathering abilities of the two races. I might dismiss this matter at once by saying that I Italianized the two apiaries this fall, pinching those Caucasian queens. It is but fair, however, to go into detail, for the Caucasian does have good qualities as far as storing honey is concerned.

The best Caucasian colonies were close rivals of the best Italian colonies, and in one particular were better. The Italians bred heavily in September, and late this fall their brood chambers were very light in

stores, whereas the Caucasian colonies in most cases curtailed their brood rearing early in September and their brood nests were well stocked with stores. In the preceding sentences reference is to the lower brood chambers, each hive having also an upper body. These upper bodies in the case of the Italians were loaded to capacity, but in many cases those of the Caucasians were not well stocked. The two races go into winter just about on a par so far as stores are concerned. Had the Caucasians built up equally with the Italians, I think there would have been a different story to tell, for there were two or three colonies of Caucasians which came through the winter strong, and these colonies had vast stores for winter.

You may well ask why, if the last statement is true, the Caucasians should not be given the preference. The answer to this was found in the extracting bodies. Colony for colony, the surplus piled up by the Italians was about double that of the Caucasians.

To recapitulate: The Caucasian race of bees has good qualities, but it has some annoying habits. I have an excellent strain of Italians and I do not feel it worth my while to try to breed up a strain of another race until it equals or surpasses what I already have. Such a task is more properly carried out by an experimental station. At present I feel confident that the best race of bees is the Italian, represented by strains which have been developed by selective breeding, carried on by some of our best queen breeders. I say this advisedly, for I have during the past ten years or more tried out strain after strain, and I know that today the very best Italian bees are those sent out by some half a dozen of the breeders who advertise in our periodicals. So much alike are the bees bred by these different men that it is difficult indeed to see any difference between colonies headed by queens from these several breeders.

It would not be quite the thing to name these breeders in this place, but I can say that I am strongly of the opinion that these best strains of Italians hark back to a strain well known prior to the great war. The breeder of this strain was little known outside his little advertisement which regularly appeared in our bee papers. I personally feel that I owe a great debt to that humble bee-keeper, and if he bred up that strain by studied selection the entire bee-keeping fraternity should raise a monument to that man. Until the advocates of the Carniolan bee, or those of the Caucasian bee, make any claims of superiority for their favorites over the strains of Italians now easily accessible they must go through

years of careful selective breeding until they have a strain of Carniolan or a strain of Caucasian which they can truthfully assert to be equal to or superior to the best of our Italians. Long live the Italian bee.

Severe Conditions—But You Were Not Alone, Mr. Haxton

This was the worst season in years for bees kept in Mount Airy, a part

of Philadelphia. On June 1 the bees were drawing out foundation in the comb honey supers, at the start of the white clover "harvest." On July 1 they were killing drones and facing starvation. Producers of extracted got some honey; most producers of comb got nothing. Colonies are strong in bees, but will need feeding to carry them through, unless goldenrod and asters yield bountifully.

S. F. Haxton.

Change Needed in Canadian Honey Containers or in the Name of Them as Used by the Trade

By C. B. Gooderham, Dominion Apiarist

ESTABLISHED habits are extremely difficult to break, but in some cases if not changed may cause considerable trouble. Such a condition now exists for the honey producers of Canada.

Honey is sold in containers of various sizes ranging from a small bottle or tin holding a few ounces to large tins holding sixty pounds. Barrels are also used, but they do not enter into the problem.

There is an unfortunate inconsistency in the amount of honey placed in different sized containers. For instance, honey in a one-pound bottle or a sixty-pound tin is one pound and sixty pounds respectively, but in a five-pound or ten-pound pail there is less than five or ten pounds of honey. In other words, the one-pound jar or sixty-pound tins are net weight, while the five- and ten-pound pails are gross weight.

Prior to the application of the net weight law to honey these different containers sold as one-pound bottles, five-pound, ten-pound, or sixty-pound tins, regardless of the amount of honey they contained. This was accepted and no comments made.

The same way is still being used, the only difference being that it is now compulsory to stamp the net weight of honey on each and every container. This is misleading to the purchaser and tends to disrupt the trade. It is misleading to the consumer for the reason that the so-called five-pound or ten-pound tin is still being quoted as such, but instead of getting that the consumer is getting part of the weight as tin. Again, a consumer calls a grocer and asks the price of honey, and it is quoted, either through ignorance, carelessness or with intent to defraud, as being 12 or 15 cents per pound, as the case may be, and an order placed for five or ten pounds. The pails arrive and a bill for five or ten pounds, but upon examining the pails it is found that the net weight is only four and a half pounds or nine and a quarter pounds, respectively.

Then the buyer feels he is not re-

ceiving what he paid for. Complaints of this nature have been made to the writer on more than one occasion this fall.

It is disruptive to the trade not to have a standard name or number for these packages altogether different from the one now in use. Some are advertising them as five and ten pounds of honey, which is misleading and a violation of the act and subject to prosecution. Others are advertising them as No. 5 or No. 10 pails. This is a little better, but, while conforming to the act, is not satisfactory.

A change is needed, either a change of name for containers sold at gross weight prior to the net weight law or a change in the size of containers, so that they will hold the amount of honey equal to the name used to designate the containers.

The latter method seems to be the most sensible. Two catalogs, at least, for 1930 quote containers as 2½-pound, 5-pound, and 10-pound, which is really incorrect, for they do not carry that amount of honey.

These comments are not intended as a criticism of the producers. They are all willing to have the net weight of honey stamped on all containers. It is either the names used to designate the containers or the size that is wrong. One or the other must be changed in the near future to avoid conflict with the law.

(In the United States the 5-pound, 10-pound, and 2½-pound pails are the correct size to hold five pounds, ten pounds and two and a half pounds net of honey. This change occurred at the time the net weight law went into effect. Yet it is necessary to mark the net weight of honey on the pails. Gross weight is no longer allowed.)

For chunk honey the tin can companies make larger pails in Texas and other localities where chunk honey is produced in quantity. These pails are used so they will contain the full five and ten pounds net weight of honey.

We have no longer any difficulty in the states regarding contents of the pails.—Editor.)



Otto's twelve-frame hives and his Roseisle honey sign that helps to move the crop.

The surplus indicated in this picture of Otto's skyscraper is somewhat breath-taking. Later the total had reached 396 pounds. If all our hives were like the best!

Floyd smiles over the eight-framer that piled up only 198 pounds.



How Big Hives Work in Manitoba

By John H. Otto

FOR several seasons I have been using the large hive (Jumbo), and from my own experience I find it superior to the ordinary hive for the following reasons:

1. With the ten-frame hive, if I had a good laying queen she would need a super for extra laying room, and, unless the weather was very favorable, this is really too spacious, as it spreads the brood and takes too many bees to keep the brood warm. On the other hand, using a twelve-frame hive I have roughly three-fourths of the foundation space of twenty Langstroth frames, all compact in the one hive body, almost square in shape and making a far more natural brood nest.

2. The large hive requires less examination all around than the smaller hive. For one reason, there are more stores in the hive close to the bees for winter, and lots for spring, if it should be poor weather for examining bees. I never have to worry over the colony being short of stores. Again, there is a lot of room to take care of the brood and all the eggs the queen will lay, up till warm days come along, so that the hives, on the whole, are far stronger early in the season. For several years on May 1, on the average, the large hives have had from one and a half to two combs more of brood than the ten-frame, and in many cases as much as four combs more.

3. The large hives winter better, being both wider and deeper, and keep up a better general temperature. They are also dryer. I have wintered both outside and in the cellar with both kinds and invariably find less dead bees, less mould, less

signs of dysentery, in the large than in the small hives.

4. With the large hive one does not have to manipulate brood into supers to help preventing swarming, which, with a good laying queen, is unavoidable with the ten-frame hive.

5. The large hive gives strong colonies. I have had eleven frames of brood and eggs in one by the twentieth of May, and with a real good queen I have found queen-cells in three hives on May 24 with ten frames of brood and eggs.

For some reason, the larger hive seems to give a more steady run of brood and eggs, nurse bees and field bees, and apparently this leads to the larger crops. For several years I have used only big hives, but previously, when I had both kinds on scales, the larger one was way ahead. In 1925 I had a twelve-frame Jumbo hive that had produced 372 pounds of honey up to August 25, and 396 pounds September 5, when the flow practically closed for the season. My best ten-frame hive, with a queen from the same mother, gave me 240 pounds.

These reasons make me enthusiastic for the larger hive. I do not have a big apiary, as I have other work to do, but the small one gives me a better chance to note things more than I would with a lot of hives in addition to my other work. I have only had two or three swarms the past few years, each year, and make artificial increase. I have wintered out altogether in these hives and have only lost two—one by mice gnawing through the bottom and disturbing the bees so that they weakened down and I united them in the spring.

I send you some snapshots of my apiary and honey signs. I had one of the large hives with seven supers on and a tag showing the 396 pounds surplus on September 5. The picture shows our old friend, L. T. Floyd, examining "a strong hive," as he called it. This is the first colony I started with on my return from overseas in the spring of 1920. It was an eight-frame colony that gave 198 pounds surplus. There are two or three pictures of my apiary.

My honey sign is placed outside the gate, facing the provincial highway, and is certainly a good silent salesman.

I helped to keep records for Professor Mitchener, recording the rain, sunshine, temperature, honeyflow, sources of nectar, and so on. I have a chart from him, for 1928, and for the third time in succession my hive showed above the average gain—another point, I believe, in its favor.

Roseisle, Manitoba.

Imagination Has Much to Do With Human Ills

We are indebted to Mr. Lloyd A. Parker, of Center Brook, Connecticut, for a clipping which reports an experiment at the New York Homeopathic Medical College, where students were given capsules, some containing sugar and milk and some containing the poison of the bee and of the spider.

The students did not know which they had swallowed, but were told to report any ill that developed. The quickest to report—and their symptoms were the most virulent—were those who had taken the milk.

The Cold Facts

Owing to the movement now on in the American Bee Journal for expansion in the bee business in this section, and feeling that the advertising in that line is based upon theory and not experience, I am hereby setting forth a little of the experience of a man who is keeping bees for a living and not for pleasure. Only men with means can keep bees for pleasure, and most men going into the business must have returns from such business.

Now in regard to this locality. In poor honey seasons we are overstocked. Even last summer the writer, who has five yards scattered over a large territory, found it necessary to re-distribute the bees and take part of them over into another section of the country in order to gather enough honey to pay expenses, and then scarcely paid out.

On the other hand, the local demand for honey—and by that I mean a section of three hundred miles across—hardly takes care of the local production. And in good years we find it very hard to dispose of the last third or half of the crop. Therefore the local bee men have often carried over a considerable part of their honey rather than disrupt the trade. And even then, although the price level is so low that it is hard getting by, much of this section is ruined by the price cutting of those who are selling out any old way to quit, or by beginners who have not counted the cost.

Out of the many who have started beekeeping in this locality, at least three-fourths have quit in despair. This I know for a fact, being myself one of the pioneers in this business here. M. Pickering, Montana.

(Editor's note: We are glad to give space to the above, since it calls attention to a feature which the article mentioned endeavored to stress. This magazine has no intention of leading any bee man to locate in a region already fully stocked. If our readers will refer to the article on Montana beekeeping in the November issue the following will be found:

"There are neighborhoods where sugar beets have lately replaced alfalfa which will no longer support the former number of colonies. In such neighborhoods we now find the pasture overstocked. . . . There are several localities where changes in the crops grown make it necessary to reduce the number of bees, and some long-established bee men find it necessary to seek new pastures."

Montana is a big state and there are locations where no beekeepers are present to take advantage of the available pasture. It is such locations rather than the ones already occupied to which we intended to call

attention. Mr. Pickering is certainly correct in stating that in some sections the pasture has already been overstocked.)

Honey Mayonnaise Without Olive Oil

Ours chances to be a household which does not care for the olive oil taste in salad dressings; also, we "object" strenuously to the manufactured sweets of the market. We have therefore concocted a dressing for vegetables which is both delicious and wholesome. It is made as follows:

- ½ tablespoonful of salt
- 1 tablespoonful of mustard
- 1 pinch of pepper
- 1½ tablespoonfuls of flour
- 1 whole egg
- 1½ tablespoonfuls of strained honey
- ½ cup milk
- ½ cup vinegar
- 1½ tablespoonfuls melted butter

Directions: Sift all dry ingredients together thoroughly; beat egg slightly and add; then add the honey. Follow with the melted butter, then the milk. Add very slowly the vinegar, drop by drop. Place over fire in double boiler. Stir frequently till mixture acquires a creamy consistency.

Lida Keck-Wiggins.

Beekeeping Course

Twelve lessons in practical beekeeping are being taught through correspondence by the entomology department of the North Dakota Agricultural College at Fargo, North Dakota. Over two hundred people from different states have enrolled in this course. According to letters received from them, these lessons have been of great aid to people interested in better beekeeping. The course is taught by J. A. Munro, entomologist and bee specialist of North Dakota.

In this as well as in other practical home study courses offered by this institution, necessary reading material is furnished free of charge and the enrollment fee is barely sufficient to take care of the cost of the postage, paper and mimeographing.

Available courses this year will include poultry, advanced poultry, turkey raising, beekeeping, fruits, vegetables and trees, forage crops, small grains, dairy cattle, dairy products, sheep husbandry, swine husbandry, beef cattle, feeds and feeding, farm structures, farm management, high school agriculture, floriculture, business letter writing, typewriting, bookkeeping, and shorthand.

Full particulars regarding this farm service may be obtained by writing to the Department of Correspondence Courses, State College Station, Fargo, North Dakota.

Pretty as a Picture



A very pretty view of an apiary in Holland, that of Jan van der Weg's. The picture was sent in by Frank Roada, Wheatfield, Indiana. We never liked the bee shed, like that shelter-

ing the hives in the back, yet they find some favor. I have seen them in Illinois, and in eastern Massachusetts they used to be plentiful. Too, the hives are close; queens will be easily lost and work difficult.



Let Me Talk About That "Burning Question"

By Josephine Di Lullo

In California we have kidded ourselves into the belief that it is the place meant in the old hymn, "Where every prospect pleases and only man is vile." The more optimistic of us believe that only a small per cent of men are without redeeming virtues. The fact, however, remains that American foulbrood is here. It is up to the fraternity of beekeepers to eliminate it or be eliminated by it.

If the stuff were only called for any other country than our own America, it would not sound so bad. If it were only English or German or Russian foulbrood perhaps we might blame it on the administration and the immigration board, but as it is we can only tax our Yankee ingenuity to the utmost and go after it tooth and nail.

Every progressive beekeeper from the very beginning has devoted his best energy to combatting this menace, sometimes doing perhaps more harm than good. One man shook, carefully treated his combs with formaldehyde, blow-torched and repainted his hives, but he wore some filthy old cotton gloves which carried destruction to everything he touched.

A kindly soul was hunting, and passed the apiary of a non-resident friend, where he saw an empty hive with the entrance nailed up. He took it home for safe keeping; he set it down in an open shed; the cover got knocked off and a good commercial beekeeper a quarter of a mile away had eighty cases of disease from this kindly, but mistaken, friendliness.

Some years ago, larger beekeepers of our community got together and took all their diseased material and

all of their neighbors to an isolated spot by a little stream. Here they shook, melted the wax, boiled the frames and hives, and generally cleaned up. They took camping equipment with them and spent several jolly and profitable days making a community clean-up, and it was a most excellent thing in every way, but, like dish washing, it was not a permanent job.

The germ of disease is so infinitesimal that an empty jelly glass which has contained infected honey may ruin an apiary, even though the honey itself shows no indication by which the most experienced person may guess its dangerous possibilities.

A back-yard beekeeper's swarm in a soap box or nail keg dies out and industrious scouts come from three or more miles to carry the infection home. The absolutely damnable practice of some migratory bee thieves who calmly leave the empty, or nearly empty, hive which has fallen before disease, when they pass on to fresh fields to reap where they have not sown, has cost resident beekeepers a criminal amount.

Some of the honey tramps throw diseased combs in a convenient rut, carefully secreting them from the inspector when he makes his trip prior to giving a clean bill of health for the purpose of removal. Indications are covered, but the results come out painfully into the open.

Shaking is not an efficient means of eradication if not properly done, and even if burning is employed the same disregard of care will spread disease just as effectively. The particular bees and combs which have been reduced to ashes will be free

ABOUT a year ago devotees in California, on both sides of the question of bee disease, jumped on our editorial neck for contributions appearing from California readers. This opened our eyes to the fact that the question of dealing with bee disease among beekeepers is almost equal to that of religion in common life—very much subject to dispute.

For a year, therefore, we have forbore from further California material, but here is one from Mrs. Di Lullo, one of the prominent, and the good wife of one of California's package bee men. Let her tell her own story. We consider it very good.

from disease and the hive bodies which have been carefully blow-torched or lye-boiled or sterilized will be free, but if a few drops of honey be left available, or if another hive of disease is within working radius of the bees, there is nothing to prevent a brand new case of infection. Until human beings have been entirely reconstructed, no methods can be devised which shall be fool-proof and absolutely 100 per cent satisfactory.

Our new law, worked out so carefully in Sacramento in 1927, simply says that bee diseases shall be eradicated.

There are several ways which, if carefully followed, will eradicate disease, but there is as yet, unfortunately, no known method by which reinfection may be prevented, so it is not merely a case of sweeping before one's own door; it demands that the neighbor be compelled to keep his premises clean, too.

It looks discouraging to a beekeeper to find a two- or three-story hive chock-a-block with honey and a few cells of disease nestling coily in its midst; for he knows, if he is really a beekeeper worthy of the name, that self-preservation as well as honesty demands that he destroy that honey, and do it pronto, or sooner.

While there may not be a cubic inch of infection, there is no means, short of a very complicated laboratory test, to tell which is clean and which is not; and in this case it is not a question of the tail going with the hide—it is the hide going with the tail.

There should be some way provided to reimburse the beekeeper for

his loss when his bees must be destroyed, but how this may be done is an unsolved problem. The apiarist now pays taxes far in excess of the benefit he receives.

Our law is young and its hinges and joints are not yet working smoothly, and some of us have questioned our inspectors, but our chief, Frank E. Todd, is a gentleman, and so are a large majority of those under him. County fair work has brought me in contact with a large number of our horticultural commissioners and they, too, are intelligent, educated, fair-minded, reasonable and earnest, and in such hands we may safely leave the future of the industry, knowing that the rough places will in time be made smooth.

French Domestic Honey Sales

According to trade reports, sales of domestic honey in France fail to show a normal annual increase in volume. It is stated that there are approximately 1,500,000 beehives in the country, yielding between 23,000,000 and 44,000,000 pounds of honey. Prices tended steadily to increase after the war to the peak level of 21.3 cents per pound, as compared with 10.5 cents in 1913. Current prices, however, are quoted at 10.7 cents per pound.

It was stated that profits to the honey producer are remunerative at these levels, but that the quality of domestic honey has deteriorated and that packing and methods of presentation of the product are inferior to imported varieties. In consequence of this fact, various brands of imported honey enjoy a preferential demand in the French market.—Assistant Trade Commissioner George W. Berkalew, Paris, Nov. 4, 1930.

Bees Fly Eight Miles for Honey Load

Through press reports it is learned that the work of the intermountain laboratory, at Laramie, on the flight of bees, indicates that the bee will fly as far as eight miles and return with her load. Under such circumstances, according to the figures, a single pound of honey would represent approximately 18,000 trips, 16 miles each, or nearly 300,000 miles of flight.

In the work in Wyoming the department placed hives eight miles from the nearest nectar supply of alfalfa, but the bees made daily trips loaded with nectar. Perhaps they will fly further if necessary. It is a safe assumption that some bees fail to make the grade over these distances, and probably the loss is greater than for normal flight.

AMERICAN HONEY INSTITUTE

BEE INDUSTRIES ASSOCIATION OF AMERICA
CHAMBER OF COMMERCE BUILDING
INDIANAPOLIS

DR. H. E. BARNARD, PRESIDENT

National Honey Week Did Not Quite Cover the United States, but Next Year It Will

All the active state associations are in favor of National Honey Week. Beekeepers everywhere are anxious to have this concentrated sales promotion program year after year. This matter should be brought up at the annual meeting and a decision and plans made for 1931. Then please send your resolutions and thoughts to the American Honey Institute or advise your delegate to the American Honey Producers' League convention of your wishes. The convention will be at Toronto, February 9, 10, 11, 12.

How About the Institute?

Are you including a discussion of the Institute in your annual meeting? You should! Your beekeepers should know what the Institute can do in their states, and the Institute will be glad to send you the names of the hospital dietitians, home economic teachers, home service directors of utility companies and others, right in your state, now cooperating with the Institute. You will be surprised to read some of the letters that we have been getting from people from your state. That's why it is of interest to the members of your association to do something in relation to the Institute.

Set aside a period at the annual meeting to discuss the American Honey Institute, and let the discussion end in a determination to support its work.

Mary Hale Martin, of Libby, McNeill and Libby, Visits Institute

At the National Restaurant Exposition was a wonderful display of fruits and vegetables, prepared by Mary Hale Martin, of Libby, McNeill and Libby. There was little time for Miss Fischer and Miss Martin to visit at this exposition; they were too busy. The following week Mary Hale Martin visited Miss Fischer at the Institute.

Result: Mary Hale Martin becomes enthusiastic about adaptation of honey to Libby's products and wants honey recipes calling for the use of honey and evaporated milk. She plans to give Institute pumpkin pie, caramel and fudge candy recipes in her Thanksgiving radio suggestions. The Institute has sent her a ten-pound pail of honey, which she

will use in getting her assistants started on formulating honey recipes.

Alice Bradley, Famous Boston Cooking School Authority, Suggests a Honey Combination

Alice Bradley, in her Hallowe'en suggestions, gives the honey date bar, made like the Institute makes it, and also in her revised edition of the Boston School of Cooking Cook Book there are many honey recipes by Miss Bradley.

All cook books now, to be up to date, should include honey suggestions, and if every one of our beekeepers' women folks will check over the cook books they have for honey combinations, then write the Institute the name of the book and the author and the number of honey recipes given, the Institute can write the authors with practical suggestions. With your help we'll bring all the cooking books up to date.

Another Prize Honey Recipe

An apple-raisin pudding recipe received first prize in the contest conducted by Ruth Washburn Jordan for the "Parents' Magazine." The October number contains another prize recipe calling for honey. Here it is:

Oatmeal Tomato Soup—One can tomatoes, one large onion, one teaspoon salt, two cups water, one cupful oatmeal, one bay leaf, one or two tablespoonfuls honey, two tablespoons peanut butter.

Boil together in a covered kettle for one hour. Strain and serve hot. If desired creamed, add one-half teaspoon of baking soda and two cups of hot milk. This makes a very good supper dish served with crackers or bread cubes toasted.

Hart Glass Shows How to Use Institute Contributor's Seal

Mr. Shideler, northwestern district manager for the Hart Glass Manufacturing Company, and a member of our Board of Directors, has decided to use the "Contributors' Seal" on his stationery. It is in the lower left-hand corner of the sheet and at the top of the seal appears "Eat More" and at the bottom "Honey." "Eat More Honey" stands out and is excellent advertising for the honey producers.

If all the subscribers using the contributors' seal would adopt this (Continued on page 31)



Selecting a comb for the display. This hive of bees is kept for the purpose and is located on a small platform outside a window on the third floor of a building in the heart of a big city.

Let Your Bees Sell Your Honey

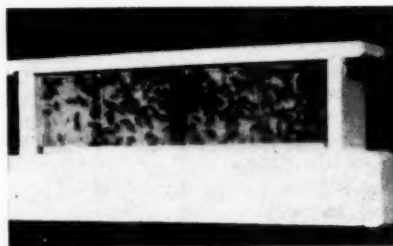
By Natt Noyes Dodge

"KILLING two birds with one stone" in the honey business is comparable to a hole-in-one in golf. It does happen, but not frequently. The honey salesman often finds that it requires a whole pocketful of selling arguments to bring down one "bird," and if he is a tough customer he is very likely to make his next purchase elsewhere on price. In this case the first sale isn't worth the ammunition. But to get TWO birds with one stone—that is like asking the bees to make the honey and then expecting them to sell it.

In selling any commodity to the public, the salesman's first step is to attract the attention of potential purchasers. When he gains their attention he must immediately (1) awaken their interest in the product; (2) create a demand for ownership; (3) push over the sale; and (4)—this is the hard one—collect the money. In this article we are interested primarily in a method of attracting the attention of the public. If, at the same time, we can arouse interest, so much the better.

So highly competitive has become modern merchandising, and so accustomed are people to commercial schemes for attracting attention, that the man with a workable idea for stopping the crowd may accept cigars from any sales manager. Everything from display advertisements in the newspapers announcing free goods to the first one hundred persons presenting copies of the advertisement, to air circuses, the staging of which costs thousands of dollars, is used by

one concern and then another for the purpose of attracting the attention of the great buying public to some commodity. In competition with this high-priced form of advertising, the beekeeper feels like a firecracker at the battle of Verdun. The little noise that he is able to make doesn't receive very much notice.

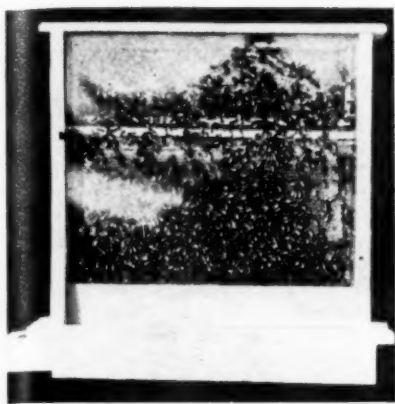


An especially attractive display case which holds four sections of comb honey. Note hinge on which cover swings and also the end of Alexander feeder at the right extremity of the feeder housing.

To gain attention in this day of attention-attracting schemes a feature must be unusual. More than that, it must appeal to one of the major human emotions. The display advertisement featuring free goods appeals to the get-something-for-nothing instinct known as greed. The air circus caters to the love of the spectacular. Every beekeeper has, right in his own back yard, in the bees themselves, the makings of one of the most powerful of attention-arresting devices. To the average person the sight of bees busy on the honeycomb is very unusual. Furthermore, because people know so little

about bees and their habits, a display of bees on the comb offers something of the mysterious which appeals to one of the strongest human emotions, and one which is always on the job—curiosity. Bees offer a further attention-arresting feature in that they are forever on the move. Motion catches the eye even quicker than color, and the fact that the display is made up of living creatures holds a further appeal. A glass case containing a well prepared display of bees on the comb, if placed where it is readily seen by passersby, is guaranteed to stop the people. It will do more; it will hold them. Perhaps it is too much to ask of the bees that they sell the honey, but give them a chance in a neat display case and they will very thoroughly accomplish the first difficult step—they will attract attention.

To be really effective as an attention-gaining device, the display must be attractive in appearance, and it must remain so for a period of several days, perhaps as long as two weeks. The comb selected must be clean and light in color. Because the observer associates the comb with the food product, honey, the comb must appear appetizing. Old, black brood combs in propolis-gummed, travel-stained frames are repulsive and should never be used in displays. The bees should be Italians, preferably the goldens, as they are very quiet. Although a certain amount of motion within the case is necessary, the bees should be still enough so that people may get a good look



The glass face of the display case. Notice the notch in the left end piece. This permits the lower frame to be inserted and removed. With the top of the case taken off, the glass lifts out and the lower comb may be put in easily. The shallow frame is set in place from above.

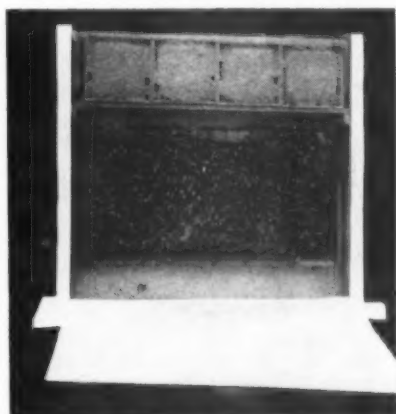
at the individuals. Bees racing excitedly around inside a display case create, in the minds of the observers, a feeling of pity for the poor creatures which are so evidently anxious to escape.

The case in which the comb with bees is shown constitutes a very important part of the display. It must form an attractive frame for the comb and bees, and it must provide the bees with a secure prison and all of the necessities of life as well as the elements of comfort for as long a time as the display is to remain. Any sign of distress on the part of the bees is fatal to the effectiveness of the display. The case should be substantial in appearance, well and carefully made, and finished with either enamel or stain so that it is as neat and attractive as any piece of furniture. Since it must house the bees in comfort for a number of days, it should provide ample ventilation and should also accommodate an unseen feeder which may be kept filled with water, or, if occasion demands, a supply of sugar syrup. Although bees on the comb may be carried very satisfactorily through a two-week period in a display case with no food other than that provided by sugar syrup in a feeder, it is much more desirable to give them a comb containing a plentiful supply of honey, and use the feeder for water. If the food is provided in the form of sugar syrup, the bees, in carrying the syrup from the feeder to the comb, will smear the glass with syrup adhering to their feet, thereby clouding the observers' view of comb and bees.

Ample ventilation, especially in warm weather, is very essential to the comfort of the bees, and therefore to their appearance of well-being. The single-frame display case, which is the most desirable for this purpose, should be built with one face of glass and the other of common fly-screen. This provides the

bees with all the air they can possibly need, and if for any reason they must be kept in a cold place the open side may be covered with a cloth or other heat-retaining material for as long a time as the protection is necessary. The feeder, if there is plenty of honey in the comb, should be used for water. It serves the further purpose of catching the bodies of any bees which may die in the case and which would injure the appearance of the display if allowed to accumulate. The bees will drag their dead about the case until they find the opening to the feeder, through which they will drop them. The feeder may be removed once a day—preferably when the bees are clustered—thoroughly washed and filled with fresh water.

There are several types of single-comb display cases. Some have a hinged top, while others are constructed so that the side holding the glass swings or is removable to allow the comb to be placed inside. The former is less expensive and is easier to build. It consists of a base with ends securely attached and properly notched at the top to permit the ends



A two-story display case which shows the relative position of brood combs and super sections.

of the frame top bar to rest secure, with ample room above the top bar for the bees to pass. It is desirable to provide a "U"-shaped piece of metal fastened to the center of the base into which the bottom bar of the frame may fit. This prevents the frame from swinging when the case is transported from place to place. There should, of course, be half or three-quarters of an inch space between the base and the bottom bar when the frame is in place. The glass face is composed of a piece of ordinary window glass, cut to fit, which is inserted from the top into narrow grooves, one in each end of the case. The glass is guided by these grooves until it settles into a similar groove in the base. It may be cut to extend one-eighth inch above the tops of the ends, this edge being accommodated by a groove cut in the cover, which is hinged to the top of one end. When



The screened face of the display case. This is a two-story case, taking a shallow frame in the "super" portion.

this cover is lowered the glass is held snugly all about, the cover being fastened down by a hasp. The opposite face of the case is closed by a made-to-fit screened frame. The case will be more rigid if this frame is nailed or screwed in place. Beneath the base is built a box-like housing of a size to accommodate an Alexander feeder slipped in at the open end. Two or three one-half-inch holes bored through the base permit the bees to come and go between the feeder and the comb chamber above. The bees may be put into the case on the comb or may be shaken into a box and run in through the feeder housing, the feeder slipped in after all bees have gone up into the comb chamber. In building the case, care should be taken to be sure that it is wide enough; that is, to assure plenty of space for the bees to cluster on the comb between it and the glass face on one side and the screen face on the other.

The question has been raised as to the value of bee displays in honey advertising because of the fact that the bees are the center of attraction, thereby distracting the attention of the spectators from whatever honey may be placed in conjunction with the display. There is some ground for comment on this point, but it must be remembered that the purpose of the bee display is to attract attention sufficiently to stop the crowd. The next step, that of focusing the interest of the observers on honey, must be taken in some other manner. There should be an attractive display of honey, much of it in neatly labeled glass containers, in connection with the display case containing the bees.

Perhaps the surest way to shift the attention of the spectators from the bees to the honey is by means of several neatly lettered cards or posters. One of these, preferably on top of the display case, may read, "Bees, as carriers of pollen, are worth millions of dollars yearly to fruit growers." Another card centrally located should read, "To gather sufficient nectar for a pound of honey, a bee would have

to fly 40,000 miles." From this card ribbons may lead to the honey display, their ends being pinned to cards bearing such captions as "Honey Is Nature's Health Sweet. Eat More of It!". "For Your Health's Sake, Sweeten Your Food with Honey. It Is Better Honey Sweetened," etc., etc. A further step may be taken by making an effort to induce a desire to purchase through appealing to the appetite of spectators by cards carrying such questions as "Do You Like Hot Biscuits and Honey?" "When Did You Last Have Waffles and Honey?", and the like. Cards carrying recipes for simple, delicious, honey-made cookies or other kitchen products help to educate observers to the variety of uses for honey as well as stimulating a desire to purchase. If the display is in a grocer's window, and the grocer is prepared to make a special sales effort on honey during the time that the display is shown, a large card bearing the following may be set up with the display: "Do you know why honey is the most healthful sweet? Come in and we shall be glad to tell you." Any person entering the store to have his curiosity satisfied on this point should not leave without taking along a jar or pail of honey if the grocer and his clerks are any sort of salesmen.

Although the use of the display case is of especial interest to those beekeepers who pack part or all of their honey crops and desire to use the bees to assist them and their grocer representatives in selling honey, this apicultural feature may be used as an effective money-maker by such beekeepers as cannot make use of it as a sales help. The manager of a department store, dry goods store, hardware store, drug store—in fact any sort of retail merchant is anxious to use his store windows most effectively as a means of selling goods. Any feature which will attract attention to his windows is welcomed by him, and he is quite willing to pay for the use of such a feature. The attention-attracting power of a display case of bees is universal, and the beekeeper who is a good salesman should find little trouble in persuading a local storekeeper to exchange a five-dollar bill for the presence of a display of bees in his window for a week's time. If desired, some sort of a tie-up may be made between the display of bees and some item which the merchant desires to feature. For example, a drug store display of Hinds' Honey and Almond Cream would tie in well with the bee display. Some lotion for mosquito bites could be featured with a card stating, "For Mosquito Bites and Bee Stings." There are unlimited possibilities for the use of a little ingenuity intermixed with humor in tying up a display of bees with all sorts of articles

which the merchant may desire to make a special during the week.

Bank managers are anxious to place interesting display features in their windows. The beekeeper will have little difficulty in obtaining a location for his display case in such a window, especially if the bank is in a town in the farming district. Such a window is ideal for a honey display with cards carrying educational matter. A display of apples may be used in conjunction, with a poster stating "Without Honeybees, Apple Growers Would Get Only Twenty Per Cent of a Crop." The bank may desire to include a card pointing out the saving characteristic of bees, which "put away" honey for use during unproductive seasons. In bank windows it is quite proper to place a card giving the name and address of the owner of the bees. This is of especial advantage to such producers as operate a roadside stand and will bring many curious folk to ask questions regarding bees. To such, whose interest in things apicultural has already been aroused by the display, it is very easy to sell

honey, and the operator of the stand has ample opportunity to get in some good words for honey and its everyday use. If an observation hive can be kept conveniently at the roadside stand, persons who stop to purchase other commodities become interested in the bees. From this point it is but a step to a honey sale.

The display case containing bees on the comb is a valuable sales aid to the honey producer. To the beekeeper with ingenuity it offers many opportunities for the creation of interesting and spectacular displays. Because of the inter-relationship, real or imaginary, between bees and other objects of daily life and matters of human interest, very interesting tie-ins may be made with other industries. These offer the wide-awake bee man a chance to pick up a little "side money" with his bees. Even in the window of a ticket office of an air transport company, a display of bees with a card, "These 'planes' are equipped with stings," would get a good laugh from all persons whose attention was attracted to this unique display.

The Effect of Temperature on the Keeping Qualities of Honey

By H. F. Wilson and G. E. Marvin

PRODUCING a better product and marketing it in more attractive ways will aid the honey industry to a very appreciable extent. So very little is known about honey that it is extremely hard to convince the beekeeper that his product is worthy of better care and a higher price.

The old slipshod methods of extracting honey in the early season and paying little attention to it thereafter must be abolished. Both producers and bottlers are doing much to spoil honey before it reaches the consumer. The general idea that honey more than a year old is inferior to new honey has been developed, to a large extent, because honey not properly cared for deteriorates rapidly and if stored at high temperatures loses the delicate flavors of newly extracted honey. But if honey is stored at suitable temperatures it will deteriorate not at all or so very slowly as to lose none of its fine flavor, and, furthermore, no perceptible color changes take place.

At the honey laboratory of the University of Wisconsin we have had samples of honey under observation at varied temperatures for several years, and during the past year samples have been maintained at four constant temperatures, namely, 40° F., 60° F., 80° F., and 100° F. A summary of the results is exceedingly interesting and should be known to our beekeepers. All samples stored

in the 100-degree chamber changed from water white honey to almost amber and lost much of the delicate flavor of the honey. Samples stored in the 80-degree chamber became slightly darker and were inferior in taste to samples held in the 60-degree chamber. The principal point of interest, however, was found in the samples stored in the 40-degree chamber and a sample stored in a chamber in which the temperature constantly stands at 10° below zero.

The samples stored at 40° F. and 60° F. did not change in color as shown by the Haubon grader. Fermentation occurred in part of the samples stored at 60° and 80°, but not at 40° F.

Yeast growth in honey does not occur below 52° F. So that if honey is stored at 50° F., or below, it will keep indefinitely without change in color or loss of flavor.

The most surprising fact observed, however, was that at 40° F. the honey crystallized very rapidly with very fine white crystals which left it with a fine creamy consistency and a very delicate flavor, even better than when first extracted. The samples that crystallized slowly formed large, coarse crystals interspersed with liquid honey, giving a very undesirable appearance.

The product formed in the 40-degree chamber would make a fine marketable product of excellent flavor, and some of our beekeepers

should try it out. If you have access to a refrigerator where the temperature is 40° F. or lower, put in a few cases of bottled unheated honey and watch the results. Perhaps a new type of crystallized honey can be developed through rapid crystallization that will meet with favor from the consuming public.

A very thorough study of honey is needed and improved methods of bottling are necessary.

Unsealed honey extracted during the summer months is not ripe; it contains an excess of moisture, and it is likely to be insipid in taste and will quickly ferment even though few crystals may be formed.

Samples taken from the top and bottom of jars of crystallized honey show that there is more moisture at the top than at the bottom, and this gives us an adequate explanation of why honey starts to ferment at the top. Crystallized honey separated from liquid honey in a jar contains less moisture in proportion than the liquid part, and it is entirely possible that in the process of crystallization the water is forced out of the crystals into the more liquid or levulose portion, causing it to be more dilute and therefore favorable to the growth of the yeast spores. This dilution naturally becomes greater in un-ripened honey and increases the opportunity for fermentation.

More care is necessary in extracting only well ripened honey and seeing that it reaches the consumer in its original condition. The use of lower temperatures in storage and bottling will help. Extreme care should be used by the beekeeper in keeping his honey free from specks of dust or crystals of honey after heating for bottling, as they form centers around which crystallization takes place.

Cardboard Box for Division Board

Needing a division board one day for a newly formed nucleus, and having none at hand, I took a box in which I received brood foundation—one of the corrugated paper boxes a trifle larger than a brood frame—stuck a ten-penny nail in each end of it to support it in the hive, and had the division board. Since then I have used many such “boards” and find they serve the purpose to perfection. In a strong colony the bees might gnaw them and carry them out piecemeal, but a nucleus seldom disturbs them. As they are full of air cells, I have an idea that they help to keep a hive cooler in the hottest weather, so when making a three- or four-frame nucleus for increase or for queen-breeding purposes in July or August I put the frames in the center of a ten-frame hive and put foundation box division boards on both sides of the frames.

S. F. Haxton.

A Long Fight Against Spray Poisoning

By Geo. W. Adams.

For the first twenty years of my beekeeping, conditions were simple. A fair amount of nectar, no poison, no disease and a steady increase in the quality of bees, hives and methods.

This is not a good locality for bees, but as my fathers have been here since 1702 (Rowley, Massachusetts) my roots strike deep. Hardwood forest and salt meadows surround the old house, but I secured often as high as 115 sections from a colony with little care or trouble.

Then came a day when the town sprayed the surrounding trees and in less than a week my apiary was reduced from 65 colonies to one colony. Of course, some life remained in all of them for a time, but in a month they were all gone save for some nuclei I combined and one colony which had evidently fed among the berry bushes to the North. Even these found drink from the leaves as the dew softened the spray poison and they grew weak.

Starting to re-establish the yard I had made a little gain, and spraying in bloom being checked, nope revived. Then came the gypsy moth and everything green was covered with arsenic and the willows cut. So far as producing honey was concerned, the loss of the willows was nearly as bad as the poison, for the bees then used the fruit bloom to build up on and we lost it as a surplus. It had been our largest supply.

Before we fully realized the seriousness of the loss of the willows, European foulbrood appeared. I am convinced that although this disease has necessarily a causative organism, food conditions affect its virulence and spread to a degree that should be considered. I found a few isolated cases of American Foulbrood also, for by this time I had begun to take care of other people's bees. These infections, we suppose, came from discarded containers and happened, most fortunately, to appear in apiaries owned by people who were willing I should take drastic measures to wipe out the disease.

In Massachusetts we have had excellent inspectors interested in the beekeeper and very helpful to him, but unfortunately, the amount of money has been so small that it is like working for nothing and boarding one's self. So many times I must beg the owner as a favor to let me save his yard. Usually orchardists give hearty cooperation but the farmer as a rule has entirely given up bees.

That this specially trained service is profitable to the fruit growers, I

have demonstrated to my own satisfaction. On one big estate some fifteen miles away I have cared for bees 19 years. On another the gardener tells me they buy their bees new every spring, but as I always have surplus colonies to sell from the yards in my own care, I doubt the advantage of that plan. Nevertheless I can supply the bees.

Were conditions here better, considerable profit would come from surplus honey, but a crop of 20 sections per colony spring count would be unusual. Of course, every reasonable effort to keep down swarming must be made but here comes in one of the very interesting but annoying conditions which makes my work a fascinating study.

It is absolutely useless to increase the size of the colony, for following each of the usual five sprayings the bees are so reduced in numbers that they cannot properly care for a large hive, and this condition is complicated by the unnaturally large proportion of young bees producing more bee milk than the diminished number of larvae required, so the queen checks her egg laying.

This brings more trouble, for many queens die, probably from being fed by poison bearing workers and because of the excess royal jelly being consumed by the younger bees we have laying workers almost at once, perhaps within four days. This condition seems to stimulate swarming, for, as a rule, it is the weaker that swarm excessively provided the queens survive.

Of course, if by any chance a colony gives promise of being able to use a larger hive, I put on a second hive body.

Honey vs. Butter and Oleomargarine

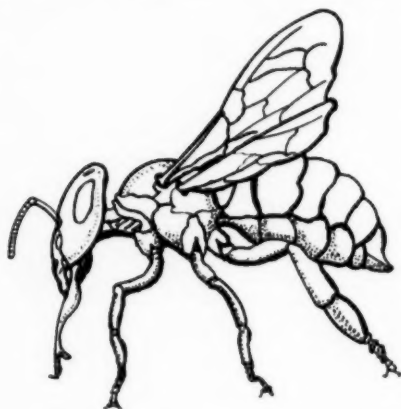
Mr. W. F. Haag, of Larned, Kansas, sends us a clipping from the local magazine, “Tiller and Toiler,” in which the use of oleomargarine is very much criticized, especially in view of the fact that the county of Pawnee is most especially a dairy and butter-producing county.

Mr. Haag adds: “The honey producers should get together and pull for honey and honey consumption, and not eat jellies, syrups and all sorts of sugar, besides oleomargarine. Honey is best for our health, since it is a product of the soil. What is there more healthy and more nourishing than honey? We do not get enough honey news before the public and do not advertise honey sufficiently.”

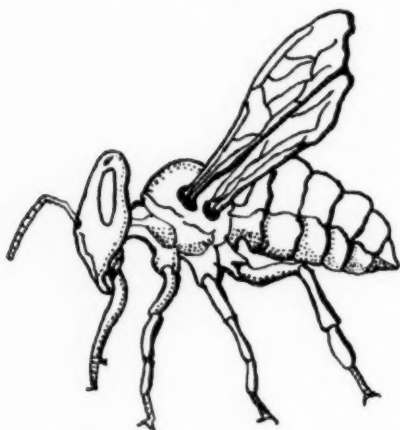
Variations in Mixed Sex in Bees

By C. H. Smith

MIXED sexes (or gynandromorphs) in bees seem to show numerous gradations between the worker and the drone, showing in some cases only a very slight variation, while in others the abnormality is very noticeable. Many of them show strange optic lobes and are undersized, the difference being as great as 37 in 100—that is, it takes one hundred of these bees to equal the



A normal worker bee, drawn to show physical characters



A mixed sex (gynandromorph). Careful comparison with normal worker, above, will show a number of differences.

weight of thirty-seven normal bees.

Some show heads of the average worker, but with much shortened bodies. Some have the end segment blunt or rounded, as it is on the drone; yet a bee with an extra segment, such as the normal drone has, never came to my notice. These fellows with the rounded end seem to have a scanty supply of hairs on their bodies, and so their color appears much darker than that of sister workers of the same colony.

These bees are not peculiar to weak colonies, since thousands of them have been found in strong colonies with apparently normal queens. Many of the small bees in these colonies

are probably dwarfs from starved larvæ—caused by the depredation of the gynandromorphs in the colony.

These inter-sexes, being excluded by the workers from normal feeding, are found, during the night, heavily clustered along the lower two or three inches of the frames, where they are readily seen in the early morning.

The fact that they are driven from the food on the combs seems to indicate their guilt in the production of numerous dwarfs, in the population of gynandromorph colonies—colonies which produce mixed sexes—because their efforts to avoid constant starvation are concentrated on the larval food in the brood surface upon which they have taken refuge, and here is where they commit the crime of stealing food from the young larvæ, thus producing dwarfs.

Examination has shown that there are many dwarfs among the offenders. I find some of these small bees gathering nectar, others gathering pollen, while there are, among the forces of these colonies, bees with large ill-shapen heads and small bodies, and other small bees which show drone-like characteristics, but never with the extra segment of the drone. Some have stings and diminutive sex organs; others seem to be female with strange terminal body formations, while still another class seems to spend its life within the hive, never participating in orientation flights. These evidently are the gynandromorphs.

In making increase (four-frame) from a colony headed by one of these freak queens, and allowing the bees to raise their own queen, I found, in one instance, that they had accepted one of these inter-sexes, from which they raised a monstrosity, undersized except for her head, which had peculiarly shaped optic lobes, yet her body was small and wasp-like.

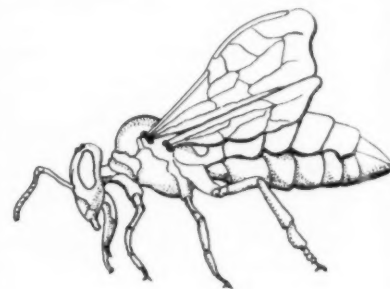
I allowed this nucleus to keep the freak, yet I suspected that she would never mate. I gave them a frame of eggs and material from which they might produce another queen. Meantime the bees recognized her and finished up the larvæ in the regulation way. (This same queen was exhibited to the state bee inspectors, who classified her as a "mud dauber".)

The bees later tore her wings nearly off in their efforts to force her out to mate. This shows conclusively that eggs of the gynandromorph-producing queens might accidentally be used when grafting, so they could show up in cell colonies.

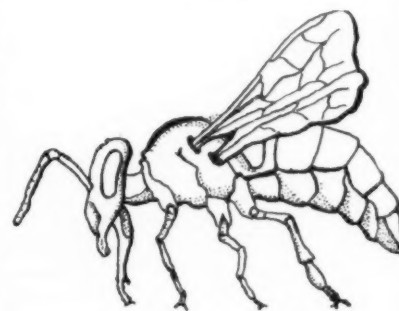
The apiary from which the material mentioned was secured had many colonies which harbored these small bees, every colony strong.

Whether these bees are drifters or not was not determined.

In the queen breeding yard these bees are a discouraging nuisance. I indicate here some of their depredations: I found in the cell-starting colonies containing some of these freaks that the normal population acted according to Hoyle—that is, they drove these abortions off the combs of food to the bottoms of the frames, and



A normal queen



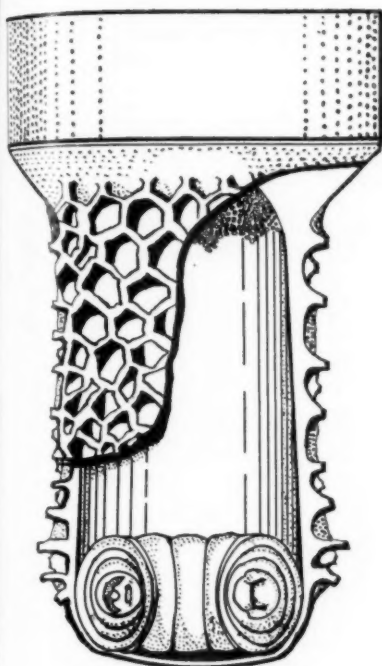
Gynandromorph-producing queen

right here is where they show their bad habits. If a newly grafted bar of cells is located near the bottom of the frame, they will then feed on the royal jelly and starve many larvæ, while if the bar is located near the top, everything will be all right—no starving.

In cell-finishing colonies we find them at their old tricks; they will enter the cells, steal the larval food up to the fourth day and starve the larvæ, then pull them down or force them toward the entrance of the cell, where the bees will sometimes seal them over.

In other cases they are found working through the third to the fifth day larval coils, where some become prisoners, because the bees have partly sealed the cell. At the same time the larva is moved near the entrance. Here they work their short wings through the coil, from which they cannot extract themselves, and are made prisoners.

At times the bees seal over these three- to five-day larvæ, together with the gynandromorphs. (No. 6.) These can readily be recognized



Starved larva, sealed over at cell entrance.
A freak bee results

and destroyed, or, if allowed to remain, the bees will destroy them in a few days, because there is no life in such cells.

The contention that these bees must be short lived is contrary to known facts, and their life cycle is no doubt governed by their ability to get food suitable for their existence. You will note that I am presuming that the gynandromorphs need larval food in variable quantities during their existence.

Here we have an apparent contradiction—that is, starving bees in a prosperous colony. Many failures in making increase may be attributable to the bees of mixed sex (gynandromorphs).

It seems reasonable to suppose that requeening with mated queens from stocks which are unrelated to the gynandromorphs should eliminate these pests, because these inter-sexes are undoubtedly the forerunners of the dwarfs and their elimination would automatically eliminate the others.

Florida.

First Individual Beekeeper to Give Institute Support

We are told that Mr. Klem Wilkas, of Dexterville, Wisconsin, is the first individual beekeeper to contribute to the American Honey Institute on the \$1.00 per ton basis. Other beekeepers have supported the Institute. This must not be misunderstood, but Mr. Wilkas is the first one who has not given his contribution through an association, but has acted independently.

Manitoba's 1930 Crop Report

By L. T. Floyd

Manitoba has this year harvested the largest honey crop in her history. The reports completed November 14, and on which the total crop estimate is based, places the figures at 10,110,128 pounds, of which only one-half is reported sold. The average per colony reported was 163 pounds. The season this year was ideal, as everyone with a hive of bees reports a crop, some excellent reports coming from the far North in the interlake country.

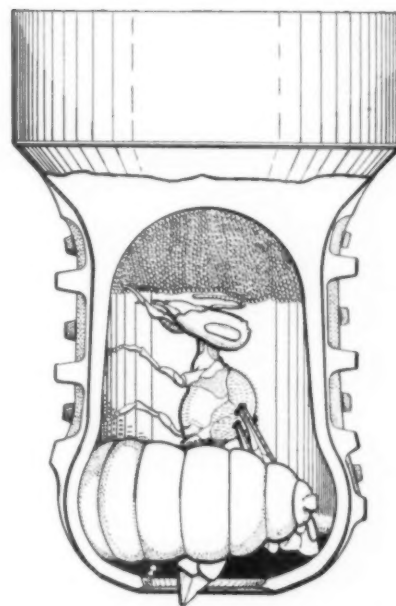
An interesting report comes from Stewart Lake, where Mrs. R. R. Scott writes that she bought two two-pound packages of bees that were shipped to her on May 1. Because of wet weather, bad roads and distance from the railway, some ten or fifteen miles, it was May 10 before she got them hived. On July 17 she extracted 252 pounds of honey; on July 27 and August 2, 113 pounds more—altogether 450 pounds extracted and 100 pounds of surplus left in combs for new packages next spring. Thus in this country, where the ice remains late in the spring, shortening the season considerably, 550 pounds was taken from two mail packages.

In 1930 the apiary of Hon. J. D. McGregor advanced into the three-carload class, and J. L. Tessier, of St. Pierre, produced two carloads, 52,644 pounds. David Hofer, of the James Valley Hutterite colony, reports 36,850 pounds, and J. J. Maendel, of the colony at Elie, had 43,000 pounds.

A prominent horticulturist in Manitoba informed the writer that he considered that honey was the finest fruit that Manitoba produced. This year it is so cheap that no householder need go without a plentiful supply.

The quality of honey is always best in years when big crops are secured. The big crop caused a great shortage in containers, and for a while all stocks were exhausted and the producers who had not purchased well in advance found themselves in desperate straits, but all this was corrected in time without loss to anyone.

Last season there was a carry-over of stocks in the province of Ontario. Large quantities of this old honey came on the Winnipeg market just before the new local crop. It is still here and unsold and has helped to depress prices. There is, however, little complaint expressed in the reports, as even with low prices honey production was more profitable than some other farm lines.



A gynandromorph bee stealing larval food and pushing the rightful occupant away to starve.

Progressive People of Long Ago

"The bees not only give us honey and beeswax; these useful insects also help in the fertilization of flowers of our orchards, of which many people are probably unaware. An orchard near which many hives of bees are located will yield more fruit than another orchard, even with the same care, can yield. The difference will be all the greater if the former is of fruit trees yielding much honey, since they will attract the bees more successfully. This fact is easy to explain. The honeybee, when introducing herself within the calyx of the flowers, causes the fecundating dust to fall on the female organs or carries it to these organs after having covered herself with this dust by rolling about within the flower to extract its sweet juices. From this is derived an artificial fecundation which might not have taken place during unfavorable atmospheric conditions.

"This may be said of all plants visited by bees. It is therefore an act of good foresight to establish bees in our gardens."

The above was copied from the "Messenger Boiteux" of 1854, by a contributor of the Bulletin de la Societe Romande of Switzerland. It shows that as far back as seventy-six years ago well-informed people knew of the beneficial influence of bees upon blossoms.

Back-Lot Days

The beekeeper who tries to control swarming by picking out queen-cells has yet something to learn concerning better methods of beekeeping.

E. S. Miller, Indiana.



More Adventures of the Bee Fairies

By Aunt Laura

"IT'S curious to me," said Dickey, "how bees can run up and down walls and even crawl about upside down. I wonder how they do it."

"Bees cannot run up a perfectly smooth wall easily," replied Fleet Wing, "but we can do it pretty well if necessary. However, in our houses we solve that problem nicely. Have you noticed our ladders?"

The bee fairy children turned and looked where their guide indicated. Here, there, on walls and roof, at the ends of the frames—in fact almost everywhere except on the combs themselves, they noticed tiny irregular ridges, some light colored and rough, others brown and shiny, some mere dots, others long lines and irregular patches.

"Why," remarked Doris May, "those look something like stepping stones in the old pasture, don't they?"

"That's what makes the walls and ceiling rough, isn't it?" exclaimed Dickey. "Of course you can run along more easily with places like that to keep your feet from slipping. But do tell us—are those bee ladders, or stepping stones, or whatever you want to call them—are they made of beeswax? Some look so different."

"Look carefully and see if you can tell any difference," replied Fleet Wing, and the bee fairy children began moving from one type of "stepping stone" to another, carefully comparing them.

"This light colored looks like real beeswax," remarked Robert at length, "but I don't know what this darker stuff is. Please tell us."

"You are correct," answered Fleet Wing. "These lighter colored 'stepping stones' on the walls are nearly all pure beeswax. It is like this: When nectar is coming in, you know, we are constantly secreting wax and sometimes much more than we need just then, so we stick these extra bits of wax about the house most anywhere, daubing it about where it will be handy when we need it. Conse-

quently, as you see, it serves most effectively as little ladders, or, as Doris May said, stepping stones."

"Sometimes," she went on, "we are making such quantities of extra wax that we form it into all sorts of little pieces of comb and hang it about here and there to suit our fancy. I know our dear beekeeping lady is not at all fond of our decorating her fine combs of honey in this way, but it is a custom of ours we have not yet overcome. Sometimes we fill all sorts of vacant places with the extra wax we have secreted just because we are rich in nectar and doing well. It is, I suppose, our way of showing prosperity, and the odd decorations of wax here, there and everywhere make ideal ladders from one part of the house to another. Now as to these darker, more irregular decorations, ladders, or stepping stones, as you call them—see if you can determine just what they are made of."

So eagerly the bee fairy children began inspecting the other type of ladders, the irregular patches and ridges of dark brown, shiny substance sometimes on the ends of frames, sometimes above, below or on the walls.

"Look, look up there!" exclaimed Dickey, pointing to a long, narrow band of this dark substance that extended almost the entire length of the ceiling where it joined the side-wall. Eagerly they ran to examine it.

"Dear, dear, it's all sticky!" exclaimed Doris May, lifting her feet daintily. "It isn't honey nor beeswax. What can it be? Please tell us."

"Centuries and centuries ago," began Fleet Wing, "before man knew anything about keeping bees in boxes, we lived in trees and crevices of rocks. There the rains would oftentimes beat in and spoil our nests, or the cold winds of spring and autumn would swope down upon us and chill our babies, or the ice and snow of winter would beat in on us to freeze us, or perhaps ants or some other enemy would creep in upon us to

destroy us or to steal away our treasure. Then, it was, our kind Heavenly Father, to help us protect our homes and preserve our lives, taught us the use of this other sort of wax. Can you guess what it is? Look at it carefully. Taste it. Smell it. Does it remind you of anything?"

Eagerly the bee fairy children gathered about, taking a tiny nibble, sniffing, inspecting, examining.

"Huh!" exclaimed Robert at length. "It smells to me a lot like Mildred's rosin for her old fiddle bow."

"Why, so it does," agreed Mildred. "It smells like Brooks' sawmill and it tastes like varnish," remarked Dickey, with a wry face.

"It makes me think of mother's floor polish," exclaimed Doris May.

Fleet Wing smiled. "Have you ever been out in the woods or orchard and seen a sticky sort of gum oozing from the bark of certain trees?"

"Oh, yes, yes," cried Dickey. "Sometimes we chew some of it just for fun."

"And perhaps you have sometime found some buds all sticky as though they were freshly varnished?" inquired Fleet Wing. The children nodded.

"Well, children, this is the wonderful gum God taught us to use for keeping out the rains and cold winds and frost, the snow and insect pests. He taught us to use it for patching up every crack and crevice in our houses. Sometimes we get overly enthusiastic and use it all about within the house. We gather it from all sorts of trees and buds and bring it home, especially in the fall when winter is approaching. We use quantities of it. We use it not only for ladders and stepping stones, but we use it to plaster up any crack too small for us to get through ourselves, but large enough to admit one of those pesky ants, one of our worst enemies. We use it to fasten down anything loose about the house. We use it to tighten down our roof, and sometimes to help close our doorways if they seem overly large to us. Oh, we use it in a great many interesting and valuable ways."

"Do you gather it like nectar?" inquired Mildred, thoughtfully.

"Yes, much as we do nectar, but not in such quantities, of course. It is not always soft when we find it, so we work it up in our mandibles until it is pliable, then we carry it home. We do not pack it into cells, but apply it at once to some part of the house where we feel it is needed, forcing it from our tongues into the cracks or crevices and spreading it about in the most necessary places. Sometimes we put it in pellets and daub it about. At other times we spread it out in bands, as with this roof. In fact," went on Fleet Wing with a mischievous look at Aunt Laura, "we always seem to have con-

siderable trouble in keeping our roof on. I honestly believe we waste more time and use more propolis—that is what you humans call this precious wax—in trying to keep this roof on than in any other way.”

“Oh, ho, Aunt Laura,” laughed Robert. “That is a joke. You yourself said some bees seemed so possessed in fastening their roofs down tight you almost had to wreck the hives to get in. It’s funny, isn’t it?”

Fleet Wing laughed with the children. “You have no idea of the amount of propolis our roof takes, and just when we get it all nicely fixed along comes our dear beekeeping lady or that meddlesome man Elliot, and off it comes again. However, a roof is necessary, so I presume we shall have to keep right on at work until we discourage them,” she added with a smile.

“And when do you gather propolis?” inquired Mildred. “All summer?”

“No, not all summer, nor especially during the honeyflow. We get some, but not much, for then a crack more or less helps ventilation and if very small does not do much damage; but when fall comes we prepare to fasten up every chink as tight as we can make it to get ready for winter days.”

“Do you always get it just from trees and buds?” inquired Dickey.

“Dear me, no, sometimes we get it from old hives or fixtures; sometimes we find something lying about that we can use. For instance (here Fleet Wing laughed merrily) sometimes we have managed to carry away quite a lot that your man Elliot had out in the orchard. He called it his ‘grafting wax,’ if I am not mistaken.”

“Oh, oh,” laughed the children, “did you do that? He wondered what became of it and declared at first we had it. Then he blamed it on Billy, the goat, and after a while on Jack, the puppy, but he never suspected you bees took it. What a good joke.”

“We made splendid use of it, too,” replied Fleet Wing with a jolly grin. “It was evidently beeswax mixed with rosin and tallow, so we managed to use it nicely. In fact I think we used most of it in trying to keep our roof glued on. Oh, yes, and besides all these uses, we sometimes use it as a sort of defense, I guess you could call it.” There was a merry twinkle in her eyes. “Come and let me show you.”

Down to the bottom of the hive they all trooped, and there to their astonishment found a large lump of shiny, dark-brown propolis, slightly irregular in shape, but nicely rounded off into a sort of mound.

“I presume you humans would call this a monument or memorial,” she remarked. “Beneath this lies the remains of an enemy that recently entered our house—a dangerous, dis- (Continued on page 31)

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THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

BOTTLING HONEY

Should we heat honey for bottling, and, if so, to what degree? Any other information on this subject would be very acceptable. MASSACHUSETTS.

Answer—If the weather is warm and the honey flows easily, it is not necessary to heat it to put it up in bottles or jars. But if it is cold and stiff, it is well to heat it to about 120 degrees. Then it flows easily. However, it is important not to heat it too hot or for too long a time, as heating darkens it. The quicker it is cooled after heating, the better it is for the color of the honey.

VENTILATION IN CELLAR

1. Just a question about ventilating the cellar where I have my bees. The cellar is under the house and is about 16x20 feet. There is no furnace in the cellar, but there is a new chimney running down to the cellar floor with an opening at the base that was left to clean out the soot. This opening is about 4x8 inches. Now, I have an opening from the outside into the cellar of a 6-inch stove pipe. On the outside I have one joint upright and on top of that an elbow, then another joint through the window, and elbow and other pipes leading down to the floor of basement. The question is this: How large should the opening be in the chimney to give it the right ventilation?

The chimney has a strong draft. I have 135 swarms in the basement. I have the eight-frame hive and most of my bees have an extra super.

My crop this year was something over five and a half tons. I think that is fair for a sideline and a Methodist preacher.

2. This last summer I had some American foulbrood and used fire to get rid of it. But when extracting I built a platform and put fifty supers around two hives of bees and discovered after they had the honey cleaned out that those two hives had the American foulbrood.

Will I have to treat those frames in the spring, or will there be any danger for next year if not treated? MINNESOTA.

Answer—1. I believe your ventilation is ample. If it should cool the cellar too much, would recommend that you close it partly to reduce its draft. Much depends upon how strong the draft is in the flue. Bees near it might suffer from the draft. Use a thermometer and do not let the temperature get below the point where the bees are quiet.

2. Yes, you will need to treat all those combs if they have been over hives having foulbrood. Better be safe and do it to anything that you suspect.

DISCOLORATION OF EXTRACTOR

I have a honey extractor in which I extracted some combs containing pollen which had been diluted by soaking the combs in water for several days. Since I have done this the inside of the extractor becomes covered with a blackish coat within a day or two after using it. It is not rust, but a dark substance as if the pollen had contained an acid that would affect the metal. Could you advise me as to what to do? QUEBEC.

Answer—I have never yet seen anything similar to what you describe. Perhaps it is the pollen of some particular plant unknown to me that causes this. If I found myself in this trouble I would try to wash the extractor with boiling water in which I would dissolve a little lye or a few handfuls of wood ashes.

If this did not succeed, I would not know what to do, except, perhaps, to paint the inside of the extractor, when it is very dry,

with a very light coat of pure siccative linseed oil, making sure of getting it thoroughly dried before using the extractor again. I don't believe that the dried oil would affect the honey. At any rate it would be worth trying.

STORING COMBS SAFELY

I have three hundred full-drawn Hoffman frames stored in a closet that the waxmoths are starting to destroy. I know they can be got rid of by fumigation, but what I would like to ask you is: Do you know of any safe place they can be stored in, such as tight boxes, closets, etc., so the moths cannot get at them? NEW HAMPSHIRE.

Answer—As a rule, a room in which bees or flies cannot enter is safe against moths, unless you happen to bring into that room some combs that have eggs of moths or larvae in them. The moths travel but little in the day time, so if you will destroy the moths with a fumigation, repeated about twice, so as to destroy also eggs that may not have hatched yet when you make the first fumigation, and if you keep the room closed with screens and do not bring into it any additional combs with possible moth eggs, you will have no trouble.

BIG HIVE BIG ENOUGH?

I wonder if conditions have ever arisen with you that would make you think that even the modified hive of one brood chamber is too small for a good queen? I am not a beekeeper of great experience, but have used your modified hive since it came out and the old hive two or three years previous to that, and the last two years, in a few cases, in the spring I have placed a second hive body on top with perhaps 25 pounds of honey in it, and the queens in those colonies have laid more eggs than any others. It is not that there was not enough room in the hives with one brood chamber, but it seems to be due to the queen not wanting to get out too near the wall of the hive. Is it not true that a queen will prefer to get not too near to the outer wall of the hive? Will try this plan on a larger scale in the spring and would appreciate your opinion on it. WISCONSIN.

Answer—The only instances we have noticed of queens not laying next to the edge of the comb, on the front of the comb, was when the number of bees was too limited. In such a case, giving an additional chamber above would encourage this limited laying in each comb. Usually, of course, the queens do not lay clear to the back end, because that is where the bees place pollen and honey for their daily needs. I believe our large hive is sufficient for the best queens. If we were to accept the experiments of some of our scientists, our hives would be altogether too large. But I have, on my side, the experiments of fifty years of practice.

PLAIN TIN FOR HONEY

1. I bought a few five-pound pails for honey in the city, but they are not lacquered inside. Will the plain tin affect the honey at all? I won't get any more of these, but I must use these now I have them. Please advise me what you would do.

2. I extracted ten frames of honey and then gave the empty frames back to the bees, and, looking over them three days later, find them sealing up a lot of cells that are not full—in fact empty. Please advise me on this also if possible. This was done during the honeyflow.

3. Do bees get anything from freshly moved soil? I have often noticed them in

among potatoes when hoeing. I give my bees a pail of water a day. Of course, a lot evaporates. WINNIPEG.

Answer—1. Tin will never rust when containing honey, except in the seam where it is cut and uncovers the iron under. But sugar syrup will rust pails promptly. Tin, so called, made of lead is not good to contain honey. But it is easy to recognize on account of its dull color.

2. When the bees seal cells that are empty it is because they have an excess of broken comb, or rather cappings, from the extractor. It rarely happens that they do this.

3. The only thing that may attract bees in freshly moved soil is moisture. There may have been a slight quantity of salt in the soil you mention, and that would make it more attractive for its moisture.

STING POISONING

We have a peculiar case in our household in regard to bee sting poisoning. A very important lady member of our household is very seriously affected by even the slightest sting. It has occurred to me that with your wide experience and observation you may know more than the ordinary person, or even the ordinary physician, about this.

A short time ago she got a crippled bee thrown against her foot and received a very slight sting on the side of foot near the big toe. Inside of five minutes the ankle began to itch, the itching feeling running up till she itched intensely all over; her throat choked up as in a bad case of asthma; her hands felt numb and were cold. We called the doctor, of course, and he gave her a heart stimulant, and she gradually rallied from the itching and choking sensations; but, whether from the bee poison or from the drug, her stomach became upset and she had vomiting for some ten or twelve hours and was quite sick for a day or two.

She had a similar experience a couple of years ago, only, as we did not know she would be so affected, attention was not paid to her so much and she fainted away, and for a while it was feared she would die. She was sick for several days after.

A strange thing seems to be this: When she first came here she was stung a good square dab right near the eye and it swelled her eye shut for a couple of days, as it usually does for the normal person who is not accustomed to being stung, but had no other bad effects and she thought nothing particular about it. But ever since then, so slight the slightest prick of a stinger, so slight that the stinger is not pulled out of the bee, will itch for hours and tend to make her feel choked up in the throat.

Have you ever known such a case. The lady is about 33 years of age and apparently in robust health. Is there any known remedy?

We contemplate removing our home apiary to a distance to remove the chance of stray bees around on the lawn, etc. but do not feel that anything we can do will absolutely guarantee that she will not get stung some time.

I have thought you might be interested in hearing of this, to me, strange case, and if you can suggest anything we certainly will greatly appreciate it.

The season here has been not over-favorable—too cool, with too much unseasonable weather, but at present more promising.

IOWA.

Answer—Yes, we have seen a few such cases. There is but little to be said, except to keep the person in question away from the opportunities of being stung.

What is needed in a case like this is an antispasmodic, to quiet the nervous system, which seems to be affected to an extreme degree. Some recommendations have been made of taking a few drops of spirits of hartshorn internally, five to twenty drops, according to the nature of the person afflicted. We have never tried it. But antispasmodics would be quite useful. Ask your physician and let him make recommendations. Do this beforehand, so as to have the remedy on hand in case of accident.

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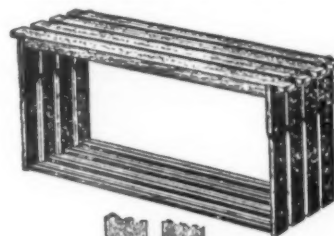


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At this time we are offering a very special reduction on the hive here illustrated. One story with galvanized metal roof cover and inner cover. Ideal for both winter and summer protection. Made of select white pine; body has dovetailed corners, with hand grips cut in sides and ends. Standard Hoffman self-spacing frames. Reversible bottom. Ten-frame hive measures 16 1/4 x 20" by 9 9/16" deep, outside measurements.



THROUGH mass production and our direct-from-factory policy, we are able to supply you with first-quality bee supplies at remarkably low prices. Savings range from 15 to 25 per cent. All Home Comfort hives, supers, brood frames and other items are built of choicest white pine; and built with special attention to details. They will give you long years of service. We always have a full line in stock. Satisfaction guaranteed. Terms if desired.



**Hoffman Self-Spacing
Brood Frames**

Write for our low price on these splendid frames. Made with a one-piece solid bottom bar for plain foundation; also with a split bottom bar or two-piece for wired foundation. State kind desired. Frames made of California soft sugar pine, all parts milled to fit perfectly. Will not split in nailing. Frames packed in Mullen Tested Corrugated Cartons in lots of 50 or 100. Come complete with nails and staples.

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For your convenience we have included a coupon with this ad. Use it or write us a letter.

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All goods purchased may be returned if unsatisfactory and money cheerfully refunded. No questions asked.

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While we ship all over the country, we can give special service to those located in the East—New York, Pennsylvania, New England, and Atlantic Seaboard states.

W. T. FALCONER MFG. COMPANY

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Gentlemen:

Without obligation on my part, please quote prices. I have _____ swarms

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Name _____

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Package Bees and Queens for 1931

Pure Italian bees bred for business. Quality and service you cannot afford to overlook. Prices in line with the times. Let us quote you on any number. Shipments when you want them. Satisfaction guaranteed.

Can furnish queens during the winter months at \$1.00 each. Prompt shipments.

*Lewis Beeware and Dadant's
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JENSEN'S PACKAGE BEES AND QUEENS

15,000 Pounds of Bees in 1931

JENSEN'S Combless Packages shipped on sugar syrup, will harvest a big share of the nation's honey crop again this year. Continued low honey prices mean that you must produce more honey for less money.

Increased per colony production is the simplest, most economical way to do it. JENSEN'S package bees and queens assure high averages because they are produced right. Our method of running all package colonies two stories and always supplied with abundant stores insures ideal building-up conditions within the hives. Least influenced by adverse conditions of weather. Result—no weak, undernourished bees for packages such as put up by some shippers claiming to have a vastly greater number of colonies than we have. But, who wants packages supplied from nuclei?

Our queens are reared by the "Doolittle System," modified to incorporate newer methods and special equipment, for large scale production, with time tested basic principles from which no man can depart. Today's beekeeping practices are such that only the best

of queens fulfill the requirements.

We take great pride in our Queen Business, and the uni-

formly satisfactory results in the use of our queens, as reported by our customers throughout the U. S. and Canada.

WE GUARANTEE—Pure mating of all queens and live delivery. Full weight of live bees in packages on arrival. Freedom from disease. Prompt shipment and complete satisfaction.

Prices { **One 2-lb. Package with Select Untested Queen \$2.75**
One 3-lb. Package with Select Untested Queen \$3.75
Untested Queens, April and May delivery, each \$1.00

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Gentlemen: Without obligation send me your descriptive literature, quantity prices and early order discounts. Quote me on the following:

() (2 or 3-lb.) packages of bees. () Queens.

Signed _____

Address _____

The coupon brings our quantity prices and early order discounts.

*"We support the American Honey Institute. Do you?"
'It's a Privilege.'*

Jensen's Apiaries
Crawford, Mississippi

More Adventures of the Bee Fairies

(Continued from page 27)

agreeable party whose family seem to be inclined to take advantage of us during the cold winter months when we are unable to defend ourselves, killing us and destroying our homes. This villain wandered in some time ago, probably to escape from his old enemy Mr. Owl, but we saw to it that he did not get out. We pounced upon him and stung him to death, the rascal; but alas! he was far too big for us to carry out, so we just had to bury him here, and we therefore covered him all over with propolis, and here his monument will remain, a warning to all his friends and relatives to keep out of our house entirely, until Elliot or our dear bee-keeping lady discovers it."

"Who is it? Do tell us who it is," cried the bee fairy children excitedly. "Do tell us who is buried there."

"One of the biggest nuisances we bees have to contend with," exclaimed Fleet Wing indignantly, "a naughty, nosey, horrid mouse!"

"A mouse?" cried all the children, "a mouse?"

"Yes," answered Fleet Wing, "a horrid mouse."

Then the children began to laugh, and Robert, looking at Aunt Laura and the little girls, remarked with mock solemnity, "Aunt Laura, you must not be frightened. Fleet Wing assures us that mouse is quite dead; and if he is not I am sure she will find a chair somewhere for you and the girls to climb upon—"

Aunt Laura laughed, too, and turning to Fleet Wing, said, "I know you all think I am silly, but, honestly, I am not afraid of most things, but I am—well—I don't care who knows it—I am afraid of mice."

"I hate them myself," replied Fleet Wing.

"I don't believe," remarked Dickey gallantly, "that Aunt Laura is a bit afraid of anything else in the world, but she says mice are so creepy, so crawly."

"They are indeed," agreed Fleet Wing, "and for my part I hope you will help her dispose of every one in the neighborhood."

"No one will have any pet mice as long as Aunt Laura or the girls are in the neighborhood," replied Robert.

"Nor any other kind of mice," giggled Mildred, "as long as you boys are willing to rescue us." And everyone laughed at the very idea.

Albee Passes On

Dr. Dan P. Albee, 74, popular bee raiser of Idaho, died recently of pneumonia. Dr. Albee was a pioneer physician of southern Idaho, but retired eighteen years ago and took to beekeeping. He was widely known here.

Glen Perrins.

American Honey Institute

(Continued from page 32)

little slogan and use it this way, it would be very helpful. Anyone who wishes to see a copy of the stationery referred to may obtain a sample by writing to Mr. G. L. Shideler, 205 West Wacker Drive, Chicago, Illinois. Mr. Lewis Parks, chairman, Board of Directors, American Honey Institute, Watertown, Wisconsin, will furnish the seal at cost to any subscriber interested in using it.

Requests Come from Listing in "Practical Home Economics" Magazine

In the September issue each year, "Practical Home Economics" lists all the publications helpful to food and nutrition teachers as well as general home economic teachers during the school year. The advertising manager asked the Institute for an ad, but, of course, it has no advertising allotment. A case of comb honey relieved the situation and all our Honey Helpings were included in the December number. In less than two weeks sixty-one requests came to the service department of that magazine for honey material, and were forwarded to the Institute. We wish you could read them. They came from twenty-three states. If you want to know the teachers in your state, write the Institute.

Armour & Co. Feature Honey in Their Unusual Pies

In the Armour Research Bulletin, Vol. II, No. 5, September, 1930, on the subject of "Unusual Pies for the Baking Industry" are two containing honey—Creole Cream Pie No. 1 and Creole Cream Pie No. 2. Both formulas call for seven and one-half pounds of honey.

In introducing this recipe, we read: "One distinct advantage we wish to call to your attention in the case of the Creole Cream Pie is that it will not sour or become unsalable over a reasonable period of time. This offers a distinct advantage over the average pie—no losses from stales."

If you are interested in getting this formula, write us or the Research Division, Armour & Co., Chicago, Illinois, for Research Bulletin No. 5, Vol. II, September, 1930.

Washing Soda for Cleaning Frames

I have found that a package of sal soda (washing soda) in an old-fashioned clothes boiler, nearly full of water kept near the boiling point, is a thoroughly effective way to sterilize frames. Furthermore, no actual boiling is necessary; immersion for five minutes is entirely effective.

The ordinary wash boiler will hold six or eight frames, and the operation

can be made practically continuous by putting one frame in one side as a frame is removed from the other side. Some sort of tongs should be used to handle the wet frames so as to keep the hands away from the caustic liquid. The frames can then be stacked up in the sun and rinsed off with a hose.

Sal soda is cheap and easy to obtain at any grocery store, and is not so bad to handle as lye. The solution will gradually become exhausted by use, so that fresh soda and water should be added as the liquid is taken up by the frames, and finally an entirely new solution will be needed.

For other hive parts nothing is better than a plumbers' blow torch used intelligently.

C. D. Cheney, Lyndhurst, N. J.

Vacuum Cleaner to the Rescue

"Schweizerische Bienenzeitung" of July relates how a Swiss beekeeper, finding that ants had invaded his bee house and were entering the hives, fetched a vacuum cleaner (driven, like much else in that land of cheap water power, by electricity) and with it collected the great majority of the ants, as well as much dust, spiders, and the like. Immediately after the job was done, the owner had occasion to examine a colony and found the bees unusually cross. Either the draught or the sound of the apparatus had evidently annoyed them.

A Propolis Remover

By H. A. Insinger

Two years ago I either had to get all my bee escapes clean or throw them away and get a new supply. Many different things were tried to rid them of that sticky mess, propolis. Nothing seemed to touch it. At last it occurred to me to give lye a trial. That turned the trick.

An enameled pot, a pint of water and a tablespoonful of lye made them cleaner than a whistle. In fact they looked just like new, except that they appeared tarnished. The lye was dissolved in the water and then I let the escapes boil in the solution for a while. How long? I forgot that. Anyhow, boil them till they are clean. Of course, they should be thoroughly rinsed in clean water after being processed. The addition of more lye will, no doubt, accelerate the cleaning.

If a large enough vessel can be had for the boiling, then I can't see why excluders could not be cleaned the same way. I found this lye treatment very effective, but if anyone has something better, then let's hear about it.

WESTERN CANADA BEEKEEPERS

We manufacture lock-corner hives, slotted bottom-bar frames, all-wire queen excluders (wood or metal frame), radial honey extractors and many other articles that are serving beekeepers in many parts of the world.

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TIME
MONEY**

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Lewistown, Ill., U. S. A.

(Mention Am. Bee Journal when writing)

**Your Early Business
Is the Finest**

Those first few spring orders can't help but be the best of the year—just human nature to treat them that way. Best care, best bees, best shipping and conditions just right at your end to make the strongest honey gathering colonies.

Thirty-six years of selecting hustling three-banded Italians, tested in our own honey-producing yards in Nebraska, Wisconsin, Iowa and Manitoba have given a gentle, disease-resistant strain of vigorous honey getters. Such queens head all our packages.

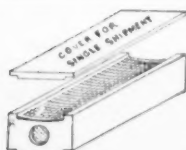
Write for circular and prices for 1931.

M. C. Berry & Co.
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and Prosperous
New Year**

To back up this wish we will furnish you the best bees and queens obtainable which will start you on the road to prosperity and happiness. Our prices are in line with the times.

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MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

North Dakota Farmers' and Homemakers' Week and State Convention, Jan. 21-22

The annual North Dakota Farmers' and Homemakers' Week at Fargo and the convention of the State Association of Beekeepers will be held in room 308 of the Agricultural Hall, January 21 and 22. This annual event in North Dakota has always been well attended and is one of the most interesting programs in the state.

Here are items from the year's program: "Clarifying and Bottling Honey," by Paul Johnson, Callaway; "Grading Extracted Honey," J. W. Beatty, Fargo; "Grading Comb Honey," T. L. Roberts, Moorhead; "Packaging Comb Honey with Cellophane," M. W. Cousineau, Moorhead; "Cost Accounting in Honey Production," H. G. Ahrens, St. Paul; "Honey and Cereals," Miss Helen L. Pickard, Kellogg Company; "Cellar Wintering," C. S. Engle; "Equipment for Commercial Honey Production," J. D. Beals; "Choosing a Location," W. F. Willing; "Research on American Foulbrood," H. G. Ahrens; "Structure of the Honeybee," J. A. Munro; "Honey Plants," O. A. Stevens; "Pollination," Dr. Herbert C. Hanson; "Swarm Control," Charles Hausmann; "Labor-saving Devices," H. A. Hailey.

Iowa Correspondence Course

A new correspondence course is offered by the Extension Service of the Iowa State College and will be opened during January to anyone interested. Can be started at any time, at leisure.

A radio supplement in the form of lesson discussions will be started the first week in March (exact date will be later announced) and continue for twelve weeks to complete the course. The lessons will be mailed each week in advance so that the students can listen in on the "Lesson of the Air." This gives the student a chance to enjoy personal contact and he can feel that he is part of a big class.

Send for a prospectus and enrollment blank to Prof. F. B. Paddock, Iowa State College, Ames, Iowa.

New York Short Course Feb. 9-14

The annual short course for beekeepers will be held at the New York State College of Agriculture at Cornell University, Ithaca, New York, during the week of February 9 to 14, in conjunction with Farm and Home Week. The course this year will be on the management of bees from the point of view of securing the greatest value from them in pollination.

**Winter Meeting of Ohio Beekeepers
February 4-6**

The winter meeting of the Ohio Beekeepers' Association is scheduled for February 4, 5, and 6, in conjunction with Farmers Week, at the Ohio State University. During the meeting special emphasis will be placed on the use of bees for orchards, the marketing of honey, and bee management.

Outside speakers include: E. R. Root, president of the A. I. Root Company; Clifford Muth, Muth Bee Supply Company; paper by H. J. Clay, Bureau of Agricultural Economics, Washington, D. C.; Lloyd Gardner, commercial honey producer, Delaware; Worthington Kautzman, Altamont Orchards; George S. Demuth, editor of Gleanings in Bee Culture; Prof. V. G. Milum, in charge of extension teaching and research in beekeeping, Illinois State Agricultural College; J. E. Eckert, Intermountain Bee Culture Laboratory, Laramie, Wyoming; Alan Eby, commercial honey producer, West Elkton, and Dr. J. I. Hambleton, director of the Bee Culture Laboratory, Washington, D. C.

The details of the banquet, which will be held on the evening of February 5, will be announced during the sessions.

W. E. Dunham, Sec'y.

Kentucky Meeting January 28

The Kentucky State Beekeepers' Association will hold its annual meeting at Lexington on January 28, 1931. The topics for discussion will be along lines of improved beekeeping methods and marketing. Prof. R. H. Kelty, professor of apiculture, Michigan State College of Agriculture, will assist with the program.

W. A. Price,

November Convention at Chico

The annual convention of the California State Beekeepers' Association was held at Chico in November and was characterized by a fine spirit of cooperation. An effort is to be made to increase the usefulness of the convention throughout the year. The same officers were re-elected: George J. Brown, president; H. L. Weems, vice-president; Cary W. Hartman, secretary-treasurer; A. M. Hengy, chairman of the Board of Managers, and O. T. Andrews and J. E. Pleasants, honorary presidents; C. Victor Smith, legal advisor.

Owing to the distance from the north to the south, the annual convention is held alternately at some point in the two extremes, which results in a sectional meeting. If there could be clubs in every county, or sectional associations in groups of counties, throughout the state, affiliated with the state organization, such a plan would offer a wider scope and greater power for the organization.

R. B. M.

Illinois Short Course During Annual Farm and Home Week, January 12-16

Another beekeepers' school will be held at Urbana at the College of Agriculture, January 12 to 16, in connection with the annual Farm and Home Week. The beekeeping sessions will be on January 13, 14 and 15. Complete program will be sent by request from the office of information, College of Agriculture, Urbana, Illinois.

Prof. Russell H. Kelty, Michigan State College, will cover the subjects: "Winter Management," "Swarm Control," "Marketing of Honey," "Bee Diseases," "Bees in the Orchard." Members of the University staff will supplement Prof. Kelty.

Reduction of Classification on Honey in Glass

The Traffic Committee of the American Honey Institute, with others, appeared in Chicago, January 21 last, before the Consolidated Classification Committee, with a petition for a reduction on L. C. L. rates on honey in glass to the level of that in tin.

This reduction has been granted and the rates will shortly be published. They will not apply at present in either western or southern classification territories. The new rate will help clean up the L. C. L. shipments sooner by increasing the consumption of honey in glass and will be an important saving to those packing this way.



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A trial order will convince you.

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AEPPLER DISPLAY 'O WRAPPERS

The Modern Merchant Believes in the Open Display of Goods. Have Every Section a Display Case.

Wrap Comb Honey and Keep It Clean

DISPLAY 'O wrappers are the only mechanical wrappers on the market; require sealing on one end only. Automatic machines have done three-fourths of the work for you! A thing of beauty, practical and economical. Can be hand wrapped three times as fast as flat wrapped. For quantity work, use our machine. The cellophane used in DISPLAY 'O wrappers is 50 per cent HEAVIER than the cellophane in competitive wrappers. Strength is a requirement of a GOOD wrapper.



PRICES

	Per 100	Per 500	Per 1000
For 4 1/4 x 1 1/4	\$1.10	\$4.95	\$ 9.80
For 4 1/4 x 1 1/2	1.20	5.40	10.70
For 4 x 5 x 1 1/4	1.20	5.40	10.70

ALL TRANSPORTATION CHARGES PREPAID to any address in the U. S. and Canada. Sample wrapper sent prepaid to any address for 5c. Wrap comb honey and pack in Corrugated Case at no greater cost!

Pack comb honey in corrugated cases and save money. In Comparative DRUM TESTS, the wooden case and honey was completely damaged in ONE drop, whereas, honey packed in Corrugated Cases after TWELVE drops showed less damage to both case and honey!

Cut labor costs; no nailing of cases! Wrap comb honey and pack in Aeppler cases at no greater cost than wooden cases.

Comb Honey Packaging Machine

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Write for your copy of our 1931 catalog ready after January 15 and note the new low prices.

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HIVES STILL IN USE 48 YEARS OLD

"I have 20 hives I got from the A. I. Root Company in 1882 and 1883. They are good all but the bottoms. I put new in—12 last year and 8 this year. They have the same comb in and was full size sheets of foundation and wired in with strands of wire. Last winter I took the comb out and the wire was in as I put it over 40 years ago."

The above is taken from a letter written by Mr. I. S. Pinyerd, of Kansas, on December 8, 1930.

It Pays to Buy



Early Order Prices Quoted on Request

The A. I. Root Co. of Iowa
Council Bluffs, Iowa

A Profitable Investment

Prices Lower Than Ever

STANDARD HIVE BODIES

"Factory run" eighty per cent clear, soft White Pine lumber, with nails and tin rabbets. Hand holes on sides and ends.

Price per five, 50c each; per twenty-five, 45c each; lots of one hundred, 39c each.

Standard HOFFMAN Brood Frames

Made of clear, soft White Pine lumber. Per hundred, \$3.95; five hundred for \$18.75; one thousand for \$35.00.

Other fixtures correspondingly low. Write for quotations on other items. Everything for the beekeeper at reduced prices.

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PORTLAND, OREGON

Crop and Market Report

Compiled by M. G. Dadant

For our January crop and market page we have asked reporters to answer the following questions:

1. How are honey sales?
2. Do you anticipate sale of all local honey before new crop?
3. Any comb honey left?
4. How is jobbing demand on extracted?

HOW ARE HONEY SALES?

Reports are that sales of honey are from fair to slow with a very few reporting "good" sales. This, however, reflects not only on retail sales but also on wholesale and jobbing. It is our idea that the retail sales are inclined to be on the side of good, whereas the jobbing sales are extremely slow. The bulk of honey moving out of the hands of the beekeeper would probably not, therefore, equal what it would in an ordinary year because of the fact that car lot sales are so extremely slow. Even in some of the western territories reports come in of excellent retail sales, but that car lots are not moving at all.

WILL OLD HONEY MOVE BEFORE NEW CROP?

As a general thing throughout the eastern section of the country it is apparent that most of the old crop will be moved out before the new crop comes in. This might also apply to practically all of the entire Southeast as well as to Texas, with perhaps the exception of Florida and some few localities. Of course, there are in distress a number of larger beekeepers who are holding the bulk of their crop either because they have not been active in retail selling or because they are unwilling to take the lower prices which are generally prevailing. All in all, it looks like the only place where there would be a very heavy excess of honey would be in the intermountain areas and the plains states, unless the demand for jobbing lots picks up considerably between now and spring. We do believe, however, that the majority of the crop will be moved before a new crop comes in even with the hindrances. It is evident that 50 per cent of the entire crop of the country has been moved by this time, and if heavy retail sales with the lower prices continue this may make an outlet which will in a way overcome the general stagnancy of the market and the lack of demand on the part of foreign connections.

COMB HONEY

Practically all reports coming in are to the effect that comb honey has moved very nicely and that there is very little left on hand. This does not apply to everyone, however, as there are a considerable number of distressed lots either because the market has not been found for them or because they are not wanting to move the comb honey at the prices which are being offered. The comb honey prices, of course, like anything else at this day, are low.

The southern plains area seems to have considerable bulk honey on hand—in fact more than usual, and there are a few producers who have gone into the bulk honey business farther north who are not meeting the sales they had expected and which last year's sales predicted. Outside of this we believe, however, that the bulk comb honey has moved in fairly good fashion and that the comb honey sales have been very much increased by the wrapping in the new cellophane wrappers. In fact in some markets it is now becoming necessary to wrap in order to dispose of comb honey at all, the grocers being afraid of the unwrapped article.

JOBGING PRICES ON EXTRACTED

The jobbing demand for honey is very, very poor everywhere. By this we mean the car lot demand. There seems to have been in the last three or four weeks a gradually increasing demand for ton lots, but not for carload lots. In other words, the previously large buyer of honey is now content to purchase in lots of one ton, two tons, and five tons, rather than load up with an entire carload at the existing prices, even though they are so low.

For this reason we are getting reports that jobbing

demand is very bad, and in many instances nil.

What honey is moving is usually not moving at figures which beekeepers feel are satisfactory.

In some of the eastern states some white honey has moved as low as 6 cents, and this is true also for some lots moving in the central areas. In the intermountain territory carload lots of white honey have moved as low as 5 cents per pound. The amber price has gone as low as even 3½ cents per pound in the Southwest, which brings it down just about to the pre-war, or the 1914, level of prices, when honey at that time was so exceedingly low.

At such prices many beekeepers holding large lots of honey, rather than wait for a car lot demand which is not materializing, have become "peddlers of honey." In this way they are really getting more than the car lot price that they would otherwise have received and giving themselves some occupation for the winter. Of course, this is inclined to demoralize the market, and in fact has helped demoralize it, because it bears down on the demand for bottlers' honey, which necessarily must be held at a higher figure in order to come even.

However, we do not know but that this is the logical conclusion for this year and that perhaps the crop may be fairly well disposed of because of the effort on the part of many beekeepers to get out and sell their own crop or have peddlers sell it at a figure which will net them about the same as if they had sold in carload lots.

There are a large number of beekeepers who do not have to consider the present prices and are holding their honey even though it is necessary to hold for a year or two. One beekeeper told us that a price below 8 cents per pound for good white clover honey was a sacrifice and that he knew he could get it if he waited a while. This has always been the case in previous conditions of this kind.

As far as we can make out, the demand has really not diminished any as the holidays came on—in fact has rather tended to enlarge. Not a surprising factor, because undoubtedly most of the bottlers and large handlers of honey are working on a hand-to-mouth basis and necessarily as their stocks are depleted they must buy to continue.

One thing which stood out prominently in reports coming in to the writer is the fact that there are quite a large number of reporters now getting out of honey already of their own crop and that of their neighbors. As we have stated many times before on this page, if every beekeeper who was out of honey would continue to sell at his very best level and purchase honey from other beekeepers to supply this demand, it would have a two-fold effect. In the first place it would keep the customers from going to other sweets, and in the second place it would help relieve the stagnancy of the market in other sections and clear up the crop.

Under present conditions, if the moderate sized beekeeper in central and eastern areas has been disposing of his crop without any undue sacrifice of prices, there is a more than average prospect for him to continue to sell and make remunerations for his labor. We mean by this that the prices of bulk honey are so low that there is room for a margin of profit between what he would have to buy for and his selling price. Ordinarily the spread is not so great as it is this year.

In the Canadian provinces there seems to be considerable stagnancy in the eastern provinces, with a material dropping in prices, but we hope that all of the bulk of the honey honey will be cleared up before the new crop is put on the market. In Manitoba, although they have had the largest crop in history, this seems to be moving well at slightly reduced figures over last year and no hesitancy felt over the ultimate disposition of the crop. The Saskatchewan and Alberta crops have already been fairly well cleaned up, and this can also apply to British Columbia, eastern honey now coming into these sections.

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Will sell your Honey, Flowers, Poultry, Fruit, Pets (as rabbits, etc.) and more . . . Is your ad here?

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BEEES AND QUEENS

BUY your queens from Allen Latham, Norwichtown, Conn.

PACKAGE BEES—For April and May delivery. Write for prices, guarantee, etc. The Crowville Apiaries, R. 1, Winnsboro, La.

BOOKING orders for 1931. Combs of brood, \$1 each; combless pounds, \$1 each. Spring reared good Italian queens \$1 each. Gentle, light colored stock. Everything shipped in approved standard packages. Orchard pollinating packages a specialty; fool proof. Fifteen years' experience. Reference given. Literature sent. No Canadian business accepted. Jes Dalton, Kenner, La.

TESTED ITALIAN QUEENS \$1.00 each; twelve for \$10.00. Ship now, anywhere. D. W. Howell, Shellman, Georgia.

WRITE for prices on package bees and queens. Jasper Knight, Hayneville, Ala.

GOLDEN Italian queens and bees for 1931. Quality higher, but prices lower. Untested, 75c each; \$60 per hundred. They are still the big, bright, hustling kind. They are guaranteed to please you. Prices on package bees sent on request. Health certificate with each package. E. F. Day, Honoraville, Ala.

PACKAGE bees with queens; 5,000 colonies wintering heavy where they get plenty of early pollen. They will be boiling over with young bees to fill your orders. And queens those "big birds" mated in two-unit, ten-frame hives, that make you a large honey crop. Let us quote you prices in quantities wanted. Koehnen Apiaries, Glenn, Calif.

WRITE for reasonable prices and folders on our superior quality bees and queens. N. B. Smith & Co., Calhoun, Ala.

CAUCASIAN QUEENS—Bred from imported stock. One, \$1.00; twelve, \$10.80. Package bees. Greenville Apiaries, Greenville, Ala.

GET Thagard's prices on Italian queens and package bees. The V. R. Thagard Company, Greenville, Ala.

GOOD TIMES ARE COMING—Governments and individuals are preparing to spend millions on improvements in 1931, putting many thousands to work. This money put into circulation will cause an increase in the demand for all products, including honey. Due to a short crop in many sections in 1930, the supply will be short. Honey should sell for a better price than in several years. Will you be ready to supply this demand? Begin now by preparing to bring your apiaries up to full strength with good quality package bees. Write for circular and price list. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

FOR SALE

FOR SALE—In California, 105 colonies of bees and all equipment. Guaranteed no disease. Bees and equipment in A-1 shape. Write J. B. Hohmanns, Spechts Ferry, Iowa.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

COMPLETE apiary business for sale, in Canada. Address "American Bee Journal."

DROUTH and hot winds have killed all white clover for this year here. Must sell 1, 100, 200 bees. Or if you know of some place in Iowa where rains preserved white or sweet clover, unoccupied by bees, write me particulars, please. Delbert Lhommedieu, Colo, Iowa.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

COMB, extracted and chunk honey in ten sizes glass containers and 2½, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with \$25 and \$50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

HONEY FOR SALE—All grades, and quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE Clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

FOR SALE—"Black Hills" fancy extracted honey from sweet clover and alfalfa, in 60-lb. cans, at \$ 1/3 cents per pound. Write for prices on large lots. Ernest W. Fox, Fruitdale, S. Dak.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Delicious palmetto honey in barrels; also heavy bodied amber. P. W. Sowinski, Fort Pierce, Fla.

HEAVY BODIED water-white sweet clover honey in case or car lots. Sample 10c. C. S. Engle, 1610 Fourth Ave. South, Fargo, N. Dak.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Best quality clover honey, \$9.00 per case of 120 pounds; new crop. Virgil Weaver, Moville, Iowa.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

STEWART'S honey in any containers. Sample free. Henry Stewart, Prophetstown, Ill.

WHITE CLOVER—Comb honey, eight cases to a carrier, at Schwind's Apiary, Route 3, Belvidere, Ill.

WHITE CLOVER comb, fancy and No. 1 white. F. B. Sherman, Edgerton, Wis.

WHITE sweet clover-alfalfa, in case or carload. Sample 15c. George Seastream, Moorhead, Minn.

FOR SALE—White extracted honey, case or carload. Roy Littlefield, Exira, Iowa.

WISCONSIN clover-basswood honey in new 60-lb. cans, \$6.00; 120 lbs., \$11.00. F. E. Valesh, Couderay, Wis.

No. 1 CLOVER comb, \$4.50 per case; No. 2 clover and amber, too dark, \$3.50 per case. In 25-case lots, 5 per cent off; 50-case lots, 10 per cent off above. Clover extracted in 60-lb. cans, 9c. H. G. Quirin, Bellevue, O.

CLOVER extracted honey, choice quality; 60-lb. containers. Bees, 100 colonies. Correspondence. M. Larson & Son, Gardner, Ill.

WILL exchange comb and extracted honey for red and sweet clover seed up to fifty bushels. H. G. Quirin, Bellevue, Ohio.

WHITE extracted clover-basswood, also buckwheat honey; fine quality any quantity. Roger Lane, Trumansburg, N. Y.

LIGHT amber, mostly white clover extracted, in 60-lb. cans, 8c. F. J. Smith, Castalia, Ohio.

FOR SALE—White clover-basswood honey in new 60-lb. cans, by case, 7¼c; ton lots, 7c f. o. b. Theresa. A. A. French & Son, Theresa, N. Y.

Galli Curci Says "All Sweets but Honey Barred from My Table"

If all of us would follow the menu of the prima donna Galli Curci, not a few physicians would have to seek other means of livelihood. In striving for the mastery in the musical world she is indeed "temperate in all things." She says "I live almost entirely on fruits and vegetables, brown bread, and butter, milk, and cheese. I use no stimulants of any kind; tea, coffee and chocolate, wines and all liquors I never touch. Milk and water are my only beverages, and I drink these in abundance. I drink two quarts of milk a day. I am not a 'carnivorous animal' and therefore I do not eat meat in any form, but occasionally I eat eggs for my lunch. Pastry and all sweets, with the exception of honey, are barred from my table. Honey, it must be remembered, is a natural, not a manufactured, sweet, and both healthful and nourishing. I never eat candy, and eat only fruit desserts. I eat sparingly of everything. I never go hungry, but I never overeat."—From the "Adventists Times"

William G. Hewes.

Incidentally the above clipping was pasted to the paper with honey. My only objection to it was that the honey extended beyond the edges of the clipping and was rather messy, but it certainly did stick it tight. Perhaps that suggests another use which may be developed for honey.

Timing the Flight of Bees With a Can of Syrup

This is the heading of an item, apparently, from a Sunday paper, sent to us by J. B. Dillon, Denver, Colorado. It tells of the work of the bee department at Washington.

To study the habits of bees, a narrow hive with glass walls on opposite sides is described, a regular observation hive apparently equipped with special light and magnifier. On a support outside is a can filled with syrup. An electric connection with a time clock automatically records the hour when the bees start flying and when they stop. A special device measures gains and losses.

This clipping not only brings to mind the apparent interest which is shown now everywhere in facts about bees, but it also indicates to us that the work of the laboratory is drawing special attention to itself. A number of projects have been started there, and we hope that Mr. Hambleton and his workers, in the near future, will have assembled for us quite a number of facts which will add to our understanding of the way bees live and what they do and how we can take advantage of these facts in practice.

Clear  Crystal

HONEY JARS

will sell your honey



No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern, and Strength in Construction.

4 SIZES — Individual, Half Pound, One Pound and Two Pound. Accurate Graduation.

WRITE FOR SAMPLES AND PRICES

HAZEL ATLAS GLASS CO.

WHEELING, W. VA.

WORLD'S LARGEST MANUFACTURERS

GLASS FOOD CONTAINERS

Are You Asking---How Shall I Sell My Honey?

The answer is easy! Beekeepers are fast learning that the best market is the home market. Honey packed in attractive containers sells best.

Build up your local market. Decorate your grocers' shelves with rows of your choice honey neatly marked with your attractive label.

If you do not find a stock label in our catalog which meets your needs, send us your ideas and we will put them in color.

We also furnish stationery, business cards, selling helps, show cards, in fact all the printing needs of the beekeeper. Catalogues on request.

AMERICAN BEE JOURNAL, Hamilton, Illinois

ROOT SERVICE
FROM
CHICAGO

A Very Happy New Year

WE WISH EVERYONE.

The tide will be with us this year. Let us each make it a better year. We can do this if we begin right, and keep right by using Root Quality Supplies.

Write now for the new 1931 catalog. Send us your list for quotation of prices.

A. I. ROOT CO., OF CHICAGO
224 W. Huron Street, CHICAGO, ILL.

A Bee Paradise

Minnesota, North Dakota, and Montana, Idaho, Washington and Oregon are developing rapidly in beekeeping and honey production. Thousands of acres of sweet clover and other valuable honey plants promote high yield and fine quality. Much good territory remains to be occupied.

Beekeeping may be developed profitably as a sideline with diversified farming and livestock or as a specialized project. Conditions are equally favorable for bees and livestock. The most valuable feed and forage crops are easily grown and production cost is low.

Beef cattle, dairying, sheep, lambs and wool are all produced on a low cost basis on low priced land. Among the most favorable localities for bees and livestock are the Red River Valley, Milk River Valley, Lower Yellowstone Valley, Valier and Sun River irrigation projects, Kootenai Valley and Pacific Coast region.

Write for free book on either state and detailed information about bee raising and farming opportunities. Low Homeseekers' Round Trip Excursion Rates.

E. C. Leedy, Dept. J. GREAT NORTHERN RAILWAY
ST. PAUL, MINNESOTA

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COSTS NOTHING TO BOOK YOUR ORDER

Write for Prices and Particulars

CANEY VALLEY APIARIES, Bay City, Texas

Bind Your Bee Journals

The readiest reference books are the general beekeeping texts, supplemented by back copies of the bee journals with their yearly indexes.

Best preserve these by serviceable binders. Good marbleboard binder that will hold two years' copies of the American Bee Journal only 75 cents, postpaid—or sent FREE for two new subscribers at \$1.00 each. (Count your own renewal as a new subscription if you wish.)

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

Latham's Queens
"She-Suits-me" Queens
are line-bred three-banded
Italians

This strain of Italians is unsurpassed in tongue-length and also in nectar gathering

1 untreated laying Queen 80 cents
6 for \$4 50 for \$31

Allen Latham
Season Kings-horn
Thorwicktown
Conn.

Seeds of Honey Plants

For better bee pasture try the following selected plants, which are famous bee plants. Try a packet of seed in your garden and see for yourself how they succeed on your soil:

	Price per packet
Catnip	\$.15
Chapman Honey Plant, or Globe	
Thistle	.10
Horehound	.10
Hyssop	.10
Lavender	.10
Marjoram	.10
Mignonette	.10
Peppermint	.25
Pennyroyal	.10
Phacelia	.10
Purple Loosestrife	.10
Rosemary	.10
Garden Sage	.10
Spider Plant	.10

Add 1c per packet for postage.

See Pellett's American Honey Plants for descriptions. A new edition of this book, with many new pictures and much new material, has recently been issued. Price of book, \$3.00.

American Bee Journal

Hamilton, Illinois

IF YOU WANT BEES
WE HAVE THEM

This is a small ad, but there are lots of bees behind it, and as good as the best; from beekeepers of 22 years' experience and the best outfit in the State of Georgia. 1800 colonies and 9 years' shipping record with no complaints reaching our publishers and very few reaching us.

We fill our promises. No delay. Full weight. Italian bees. No drones. Any kind of package. Via express only.

J. G. PUETT & SON

Hahira, Georgia

Stevenson's Apiaries, Westwego, La.

We wish you a Happy and Prosperous New Year, and thank you for your patronage.

Price list and testimonials furnished for our excellent, select, golden queens and gentle bees. Satisfied customers in 34 states.

When Writing Advertisers Mention The American Bee Journal



PACKAGE BEES

Nuclei Queens and Orchard Packages

Are you satisfied with average yields, or do you want to harvest bumper crops?

One customer reports 39,000 pounds from 105 colonies—some wintered over, some package bees, all headed with our queens.

Another averages over 250 pounds from 35 colonies, mostly package bees shipped May 2. One of these packages stored 440 pounds.

Over 20 years with the bees. Write for prices. Let us quote you.

The Crowville Apiaries

J. J. Scott, Prop.

Route 1 Winnsboro, Louisiana

Learn how to save time and labor plowing, seeding, cultivating, spraying, field mowing, etc. with the All-Purpose

BOLENS Tractors

Eight powerful models—22 attachments all interchangeable—simple tool control, power turn, high plant clearance—boy or girl can operate—thousands in use. Write for GILSON BOLENS MFG. CO. Port Washington, Wis. (1) catalog, 125 Park St.

Name _____
Address _____



USE THIS COUPON

**Write for 1931
prices of pack-
age bees and
nuclei. Italians
only. N. L. Staple-
ton, Colquitt, Ga.**

Save Time -- Save Worry

Dadant's Wired Foundation

Can be nailed into Lewis Slotted Bottom Bar in a jiffy. And such wonderful combs!

Sold by all Dealers in Lewis
Beware and Dadant's Foundation

FREE QUEEN

Red River Valley Apiaries

A free queen to the first twenty-five answering this advertisement in January, who buy package bees.

Package bees and three-banded Italian queens. Am here to give you packages and service that please. Satisfied customers in twenty-six states and Canada is evidence. Send for circular and price list.

J. G. Brunson, Chicota, Texas

RENEW YOUR SUBSCRIPTION
NOW

A Full Line of Bee Books for Every Type of Reader

To the educator, the investigator, a complete library on his chosen subject is a necessity; to the practical beekeeper a working library is indispensable; and to the smaller beekeeper and fancier good bee books make more fascinating the quiet winter evening at the home fireside.

This complete list of bee books is offered to suit the desires of all. Scientific, historical, practical, and popular bee books are included.

Look the list over. You cannot help but find a volume therein of special interest to you.

Why not make the Christmas gift this year to father, brother, the women folks, or the children, an appropriate bee book?

We will be glad to include your Christmas card and address the book wherever you say.

	Postpaid		
Spirit of the Hive, Dallas Lore Sharp	\$2.50	Beginner's Bee Book, Pellett	1.50
Flower and the Bee, J. H. Lovell	2.00	How to Succeed with Bees, Hawkins and Atkins	.59
Bees and Beekeeping, Cheshire (2 vol.)	6.50	Wilder System of Beekeeping, Wilder	.50
Fifty Years Among the Bees, Miller	1.50	Queen Rearing Simplified, Jay Smith	1.25
Embryology of the Honeybee, J. A. Nelson	2.00	How to Market Honey, Lewis Company	.05
Anatomy and Physiology of the Honeybee, Snodgrass	3.50	Money in Bees in Australia, T. Rayment	2.50
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Honey-Way Menus, Fischer	1.00	Same in Polish	2.50
Honey Plants of North America, Lovell	2.50	Outapiaries, M. G. Dadant	1.00
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Bee Master of Warrilow, Edwardes	2.00	Thousand Answers to Beekeeping Questions, C. C. Miller	1.25
Our Backdoor Neighbors, Pellett	1.50	Modern Beekeeping, H. Mace	1.50
Birds of the Wild, Pellett	1.75		
Productive Beekeeping, Pellett	3.00		

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Practical Vegetable Culture, Wilkinson	\$2.00
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1000 Garden Questions Answered, Hottes	2.00
Garden Guide	1.50
Little Book of Perennials, Hottes	1.50
Wayside Marketing, Arnold	1.50

Send all orders to

American Bee Journal - Hamilton, Illinois

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

Canada figures rather prominently in this issue. It is to be hoped that a big crowd of American beekeepers will go to Toronto the second week in February to attend the convention of the League. It will do our folks good to see what a fine bunch those Canadians are. They are honest-to-goodness beekeepers up there and the best of us can learn something from them.

That Man Floyd

The item on page 25 about the Manitoba crop is the first time we have heard from Floyd for some time. About fifteen years ago he was a contented farmer down in New Brunswick, doing three things well. He had a dairy, raised strawberries, and produced honey. The Department of Agriculture wanted just such a man to talk at a series of farmers' meetings and asked Floyd to serve for a few weeks. Next they offered him the position of provincial apiarist, and it was hard for him to decide whether to leave the farm. After he had been at work for a time at his new job the Manitoba Department of Agriculture drafted him for work in the West. See what develops when the job seeks the man.

It happened that I first became acquainted with him soon after he had started at his new work. The field was new, there were few bees and much skepticism as to the possibilities of beekeeping in western Canada. The Government wanted to develop the resources of the West and put it up to Floyd to see how much honey could be produced in Manitoba. Nobody expected to see the day when ten million pounds would come from the hives of that province in one year. It has been the outstanding example of successful extension work. Now the big problem is to find an outlet and some outstanding work in selling is progressing up there. Watch Floyd.

Now the Floyd boys are grown up and going to college. When they get their names and pictures in the paper for winning a footrace, "Dad" can be pardoned for swelling with pride. I know how it is, for I have some youngsters myself. However, mine never could make the football team or win any races. Their sire is too much of a scrub to enable them to star in athletics.

How Come?

Speaking of holiday greetings, a letter from Doctor Phillips to the writer, in commenting on the new grandson mentioned in last month's postscript, adds: "May you receive many more such gifts." This getting into the grandfather class is rather startling. To be called "granddad" sounds so old—in fact it sounds much older than it feels.

The Best Bees

Here comes Latham again (page 14) after a long period of silence. When he talks he usually has something to say, even if there are some who will disagree with his conclusion that Italians are the best bees. From a schoolboy butterfly collector, Allen Latham just naturally evolved into a beekeeper. It is a safe guess that back in the days when he was a schoolmaster and busy herding the obstreperous boys he dreamed of the days when he could spend all his time with the bees. I can't find any fault with his reasoning on page 14, for I once had an argument with Latham about the reasoning ability of bugs and skunks and want plenty of dry ammunition when I go gunning for him.

A Burning Question

On page 48 Mrs. Di Lullo touches on a touchy question. Bee disease surely is a "burning question," for the editors get scorched every time anything appears concerning it, no matter what angle it refers to. I have been so badly battered when mixing in a disease argument at various times that I have decided that, no matter what one says, it's wrong.

Some Compliment

The finest compliment that has come to the writer in a long time was contained in a letter from Archie Thomas, of Coffee Creek, Montana. He writes that he walked through the snow for fifteen miles to get the book, "American Honey Plants," but that it was worth it. I walked that far at one stretch just once and I have never forgotten how far fifteen miles is afoot. I am

afraid I would lose interest in a book if I had to walk so far to get it.

His letter gives us a glimpse of pioneer conditions when he says that, due to the height of the mountains on the south, he cannot get out to Coffee Creek until summer, except on foot or saddle-horse. He lives in a narrow canyon on the banks of Arrow Creek and has a good location for his bees. Thomas says that he is "just another fool about birds and bees, pollen-bearing trees and God's big laboratories." I believe that most beekeepers have something of that feeling in their makeup. Some day I want to spend a few hours with him, tramping in those mountains.

A Radio School

Professor Paddock proposes to bring beekeeping instruction right up to date. For years the Iowa State College has conducted a correspondence course in beekeeping. Now they will give the lessons over the air, so that every student can feel that he is right in the class. Read what is said about it in this issue. Paddock provides the usual textbooks to those taking the course and corrects the lessons sent by mail, but along with the book and the letters the student hears the professor give the lesson by listening in on his radio. The world moves so fast that it makes us a little dizzy at times, but beekeeping is holding the pace. Well, Paddock, here's to you. You will probably have the biggest beekeeping class ever. There is also an announcement of a correspondence course by Professor Munro, of North Dakota. How about using the radio up there?

An Early Start

"Buddy" Cale, Glory's eleven-year-old son, is a beekeeper on his own. Just before Christmas, with his product bottled in a fancy glass jar with a real printed label, he started out to sell his honey. He timed his efforts to reach the trade when it was in a buying mood, and had something to offer suited to the Christmas season. As a result he sold out within a few hours.

Whenever you find a boy beginning to do things for himself at eleven years of age, you can set it down as a safe bet that he is going somewhere. The very first foundation stone of success is self-reliance, and there is no better way to develop that quality than to encourage a boy to produce and sell something for himself. The world always steps aside for the fellow who knows where he is going, and Bud is making an early start.

He has all the earmarks of a real beekeeper already, for he is enthusiastic and likes to work with the bees and doesn't stampede when he gets stung. There are plenty of boys who get interested in bees until they get into the yard, but lose all their enthusiasm with the first stings. Watch Bud.

New Year Good Wishes

This is the first number of the seventy-first volume of the American Bee Journal. It was the first bee magazine in the English language, and, although hundreds of others have been established, since that time, which have discontinued, thanks to the support of our loyal readers we are still going. This magazine has passed through the vicissitudes of the years with the usual ups and downs. In the years when honey producers have been prosperous we have forged ahead. In the lean years things have not been so promising. A trade journal largely reflects the activity and prosperity of its readers. Ours have been loyal and friendly, and that fact is much appreciated.

Just now we hear much of depression and discouragement, but things are always darkest just before dawn. The writer feels that better times are near at hand. Beekeeping is probably the oldest or at least one of the oldest pursuits known to man. Our business is based on a fundamental human need and there will continue to be demand for honey.

We extend our sincere good wishes for the health, happiness and prosperity of every reader, and propose to do our best to make this magazine a little better this year than ever before.

F. C. P.